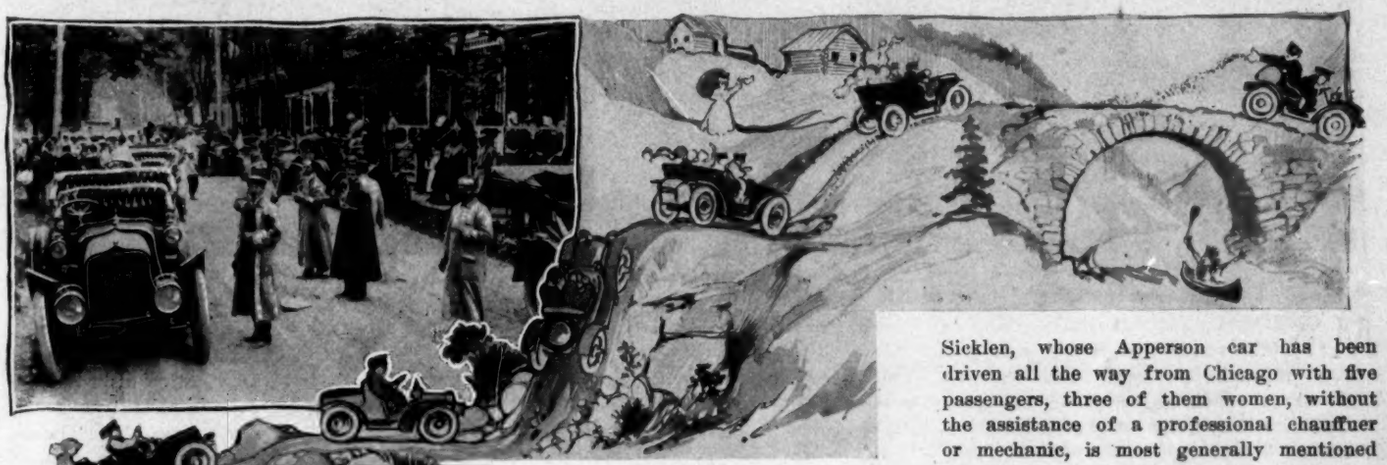
MOTOR AGE

VOL. X NO. 4 CHICAGO, JULY 26, 1906 $2.00 Per Year

GLIDDEN CUP DECISION NOW UNCERTAIN



WATERVILLE, ME., July 25—Special telegram.—with but 2 more running days left to terminate the third annual tour of the American Automobile Association, forty contestants are still in the run, perserving pluckily in their attempt to win the Glidden cup or gain a creditable score in the competition. The past week has about cut the honor list in half, but there still remain fourteen tied for first place with perfect scores. In addition to the Gliddenites three contenders for the Deming trophy remain. Two of them, C. W. Kelsey and Augustus Post, have clean scores. The caravan of competing, escorting and official cars numbers three score, the ranks of the tourists having had a net loss of only about a dozen since the start from Buffalo, a thousand miles of hard fought roads behind, a fortnight ago. Closely pursuing the clean score leaders are a deserving bunch a few points in the rear whose losses have come through tire troubles, petty mishaps, and failures to make schedule time at a checking station or two by a narrow margin.

On the whole the A. A. A. tour of 1906 has so far been a most remarkable and convincing demonstration of reliability and fitness for American roads by Yankee-built cars in a test whose strenuousness has never been equaled in the history of automobile contests. A bulletin posted tonight divides tomorrow's run into six checking stations, making good the forecast in a previous dispatch that there would be a resumption of the increase of controls, to be continued probably until the end of the tour at Bretton Woods on Saturday.

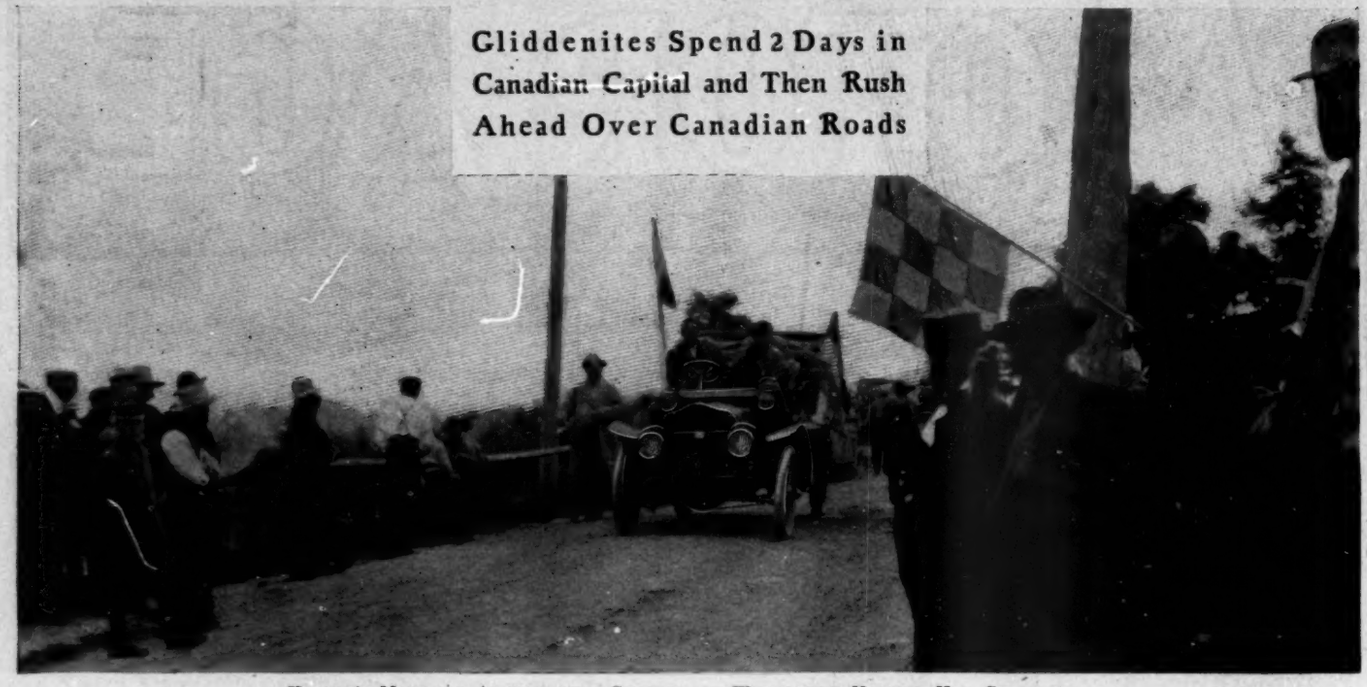
In reviewing the mishaps that have occurred so far in the tour it can truthfully and to the credit of American makers be said that they have been confined almost exclusively to the running gear and that the engine, ignition and spark plug troubles have been few and far between, the cars have had a terrific banging over abnormally bad roads for over half of the thousand miles already covered. What wonder is it that in the back woods wilderness that has been traversed there should have been a dozen cases of broken springs and fewer than half that of axles put utterly out of commission. As the run was progressed tire troubles have naturally been on the increase. It is safe to say fully half the points lost have come from tire delays and that a considerable portion of the balance from blockades in the narrow roads.

Some favor a custodian for the cup, to be elected by the clean score men, and in this connection it may be excused if the truth is stated that our own N. H. VanSicklen, whose Apperson car has been driven all the way from Chicago with five passengers, three of them women, without the assistance of a professional chauffuer or mechanic, is most generally mentioned for the honor should his clean score continue to the end. Others suggest that the custodianship be divided among the winners. Mr. Glidden's idea that the custody be settled by lot meets with little favor. It was said during the day that the committee during the last 2 days runs would resume the doubling of the checkers. This has caused no end of argument. Those who have lost points would like to see the running made more strenuous that the clean score list may be still further depleted and that they may have more companions in their misery. Those on the honor list protest against this attempted counting out of their scores. It is also argued warmly that it will be best for the industry to have as many cars complete the great run with perfect scores as possible. The majority of opinion is against any supplementary contest to decide the tie.

Just how it will all end would be hard guessing right now. Since the end of today's run there have been many confabs among the officials, but so far as known nothing has come of these talks. It's a safe bet to say that the tour managers would gladly welcome a Moses who could lead them out of this wilderness, a maze that bewilders all, contentants the same as others. It is down to a case of where you don't wish the other fellow any hard luck, but you do hope something will happen to spoil his perfect score. Two days more, though, will tell the story. But the end is not yet and on we go again tomorrow.

IN MONTREAL—ON TO THREE RIVERS

Gliddenites Spend 2 Days in Canadian Capital and Then Rush Ahead Over Canadian Roads



KELSEY'S MAXWELL ARRIVES AT A CONTROL, AT WHICH THE NATIVES HAD GATHERED

MONTREAL, July 19—This strenuous schedule-run tour has now been on long enough to make a day of rest welcome even to the most eager of the tourists. This big, solidly-built burg of 400,000 inhabitants has enough of the British about it to make it reposeful, and so much of the French—in fact, 75 per cent of it in population—to make it mighty interesting and one realize that a week of riding in his automobile has indeed brought him to a foreign land.

The first thing in the morning the Automobile Club of Canada governors captured and carried off the tour officials to a breakfast at a suburban resort. The plain, ordinary mortals of the expedition scattered to the four winds. Some wandered afoot among the price and goods tempting shops and visited Notre Dame and St. James cathedral, the old Chateau museum of antiquities, and the great Bank of Montreal; others climbed the heights of Mount Royal, while other easy-going ones took carriages and viewed the palaces of the lords and money magnates; the British and French universities, and the monasteries, hospitals and convents.

The early afternoon was set for the reception of his worship—that's what Glidden called him, and Glidden, of course, knows the courtesies of the entire globe—the mayor. One hundred or more of the tourists gathered in the city hall to acknowledge the compliment of the invitation. Mayor Ekers handed out the welcoming jolly very neatly, declaring that the boundary line between the countries of the cousins was an imaginary one and would be unknown to both were it not for the custom house.

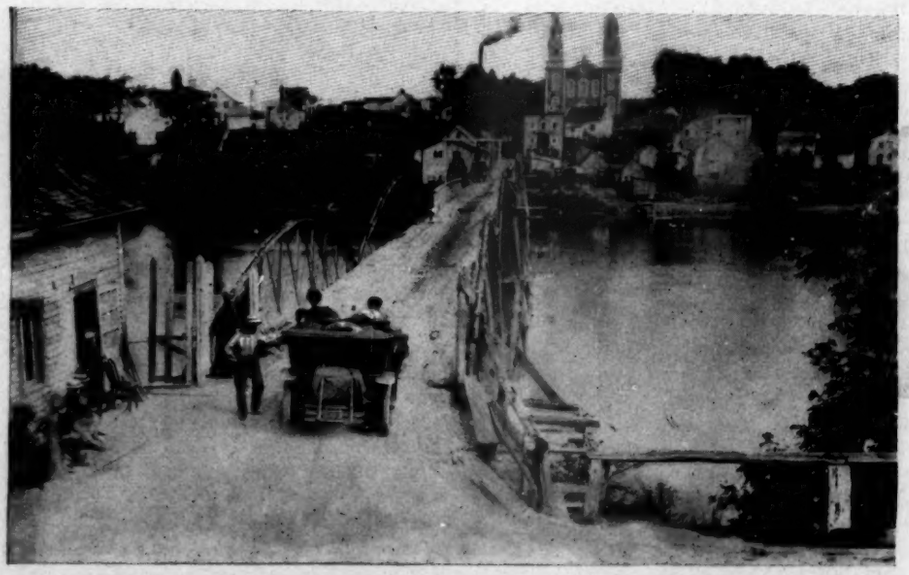
Mr. Glidden replied that the tourists had found the same cordial greeting in Montreal that was extended to travelers a-motor wherever on the face of the globe the flag of Great Britain floated.

Following the municipal reception trolley cars awaited the Gliddenites without, and bore them to Lachine as the guests of the automobile club. Here, after a long wait on the dock, they boarded the steamer Duchess of York and, piloted by "Old John," the Indian, voyaged for an hour down the St. Lawrence, and had more or less excitement in shooting the rapids en route.

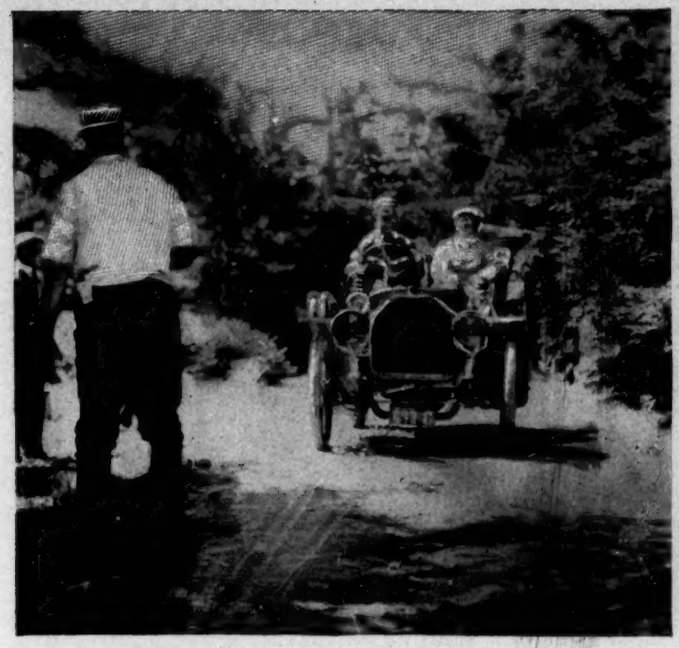
That night it was "early to bed" for an "early to rise" in the morning. There is a marked absence of carousing at nights on this trip, the tourists being a trifle too tired to prefer the dissipation of provincial cities and villages to the restful joys of a comfortable bed. Of course, there always will be found a coterie of "Wagnerians" ready to wager a dollar or two on manual improvement.

MONTREAL TO THREE RIVERS

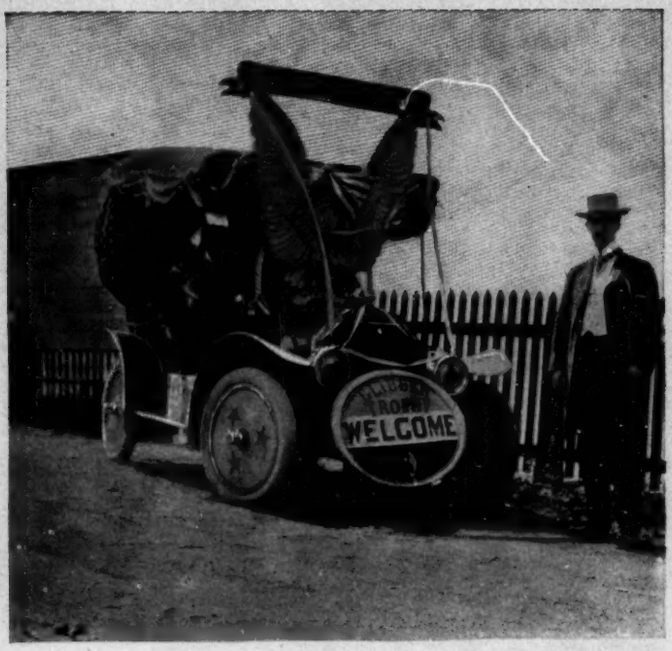
Three Rivers, Canada, July 20—This little Canadian lumbering town on the St. Lawrence river marked the end of a day's run, which was a veritable triumphal procession and marked by the most remarkable and universal ovation of greeting it is safe to say ever extended to automobiles



PAYING TOLL AT THE ASSOMPTION RIVER BRIDGE



SNOW'S PEERLESS PASSING CHECKING STATION



MONTREAL'S DECORATED PRESS CAR

and probably any body of tourists in modern history.

"Neither President Roosevelt nor Admiral Dewey ever had a more general or enthusiastic greeting than this, and I have followed both of them," said Lazarnick, the Motor Age photographer.

"Lazzy" is an enthusiast, but he probably did not come far from the truth. It was a marvelous and continuous ovation clear from Montreal all through an almost unbroken line of little French villages to Three Rivers. The entire working population seemed to have taken a day off and the woman home-folks donned their Sunday best, invited their cousins and friends from the back country to join them and whooped it up for the tourists all day. Crowds lined the streets, filled the porches of the towns, hung out flags and stretched banners of welcome across the highway. In front of every farmhouse were groups of men, women and children, and people clustered at every turn and on every bridge and hill to see the caravan go by. Flags of Great Britain whereon were the Canadian coats of arms, flags of the various orders of the church, striped table cloths and strips of colored goods, and quite frequently the stars and stripes, too, were hung out and waved.

Girls pelted the cars with bouquets of wild flowers and with utter abandon threw kisses at long and often paralyzing short range.

It was "bon-voyage" and a very proud "good-bye" all the way.

" 'Bon jour' and 'Merci,' " shouted the tourists in reply with equal pride in their linguistic accomplishment.

A priest had the notes of "Yankee Doodle" before him and made a rather rocky attempt at blowing them through a cornet. He meant all right, though, and every car rewarded him with a cheer. At one checking station a quartette of priests left the "bridge whist" they were playing in a summer house by the roadside to question us about the tour. "Hal" Sheridan had time enough to spare to give them their first automobile ride.

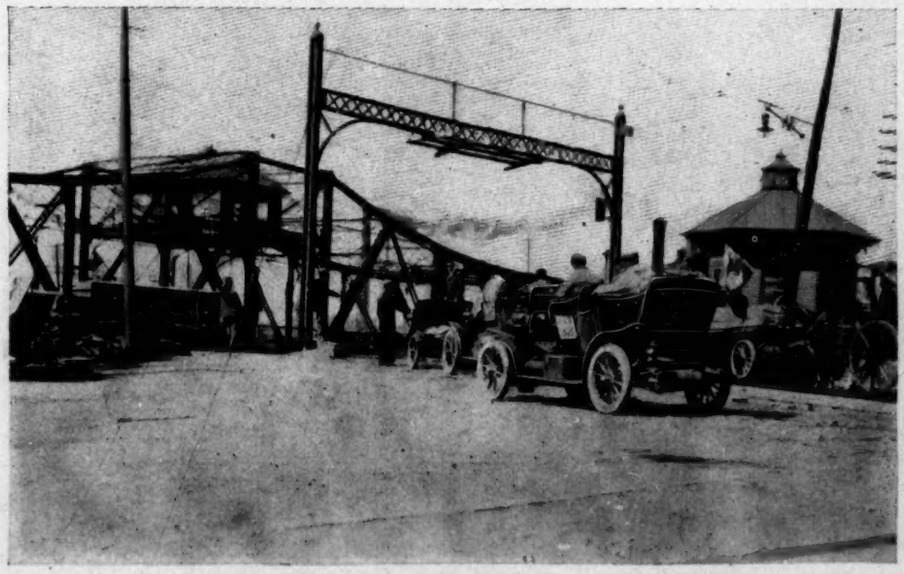
At another point some playful girls had dressed up a dummy with false face, straw hat and spring finery and shouted with glee at the delusion that they had fooled the automobilists.

The day's run was much of the way along the Assomption and St. Lawrence rivers. It was bad, sandy going for the greater part of the journey. At places and for long stretches it was over a corduroy road of six or eight parallel ruts, which required careful driving to negotiate.

The committee, however, had reduced the running average to some 15 miles an hour. This was easy to maintain, and there were few to lose points. John L. Snow, of Boston, alone of the honor list, fell by the wayside. In rounding a sharp curve too swiftly he ran into a fence and smashed the steering gear of his Peerless. He lay to in a barn all day, but finally made the repair and landed in town at 8:15 o'clock in the evening amid cheers of welcome.

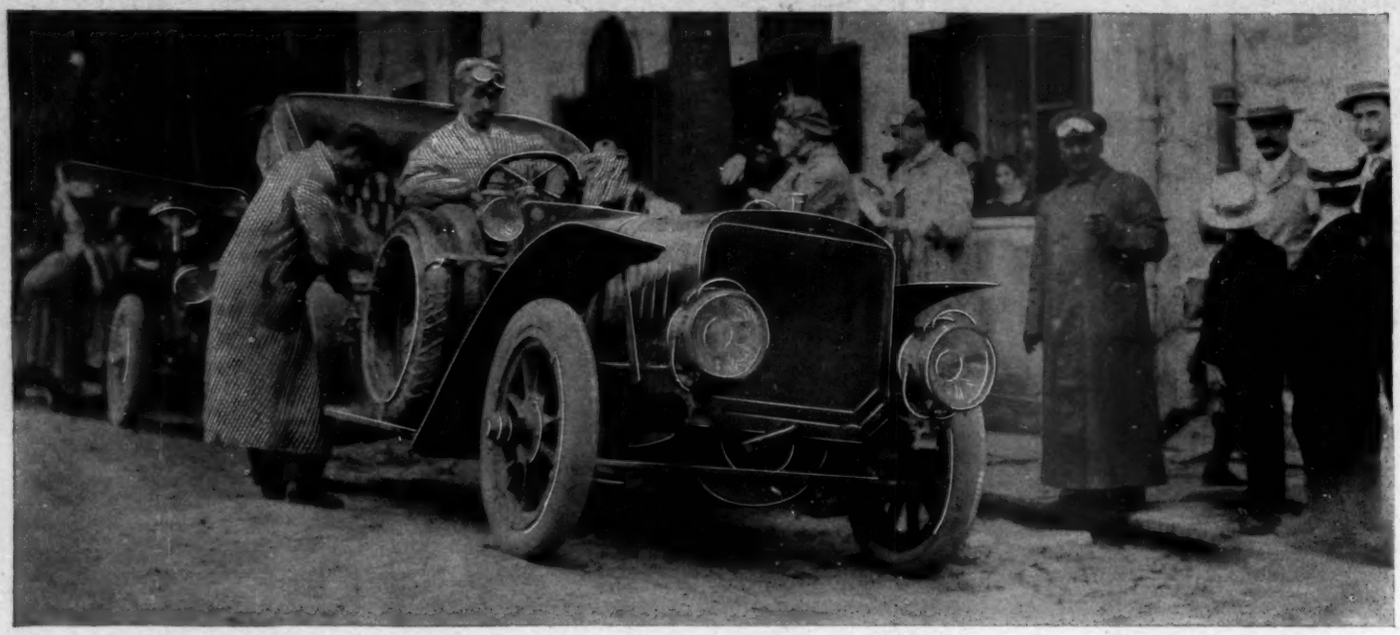
The capacity of the two local hotels was utterly inadequate to house the tourists, so the committee had chartered a steamer for the overflow, which was largely in the majority. "Les Trois Rivieres" anchored at the dock, its passengers seeking meals at the hotels hard by.

In the evening the steamer was made the rendezvous of all hands, who gathered on the deck and sang, and sang, and sang. The "Mudlarks," led by R. H. Johnson, of the White brigade, proved live ones.



AN OPEN BRIDGE THAT PERMITTED A BUNCHING OF CARS

QUEBEC GIVES TOURISTS ROYAL WELCOME



EARLY PREPARATIONS FOR THE START FROM THREE RIVERS

QUEBEC, July 21—A French-Canadian girl of 17, straight, willowy, graceful, her dark hair waving and her black eyes blazing with expectation and excitement, stood on a steep hill-slope today near Portneuf, a nymph of the wilds, her gaze straining down the road. Around a turn of the highway a car came into view. The statue became a wild, dancing bacchante. Whirling her arms around her and jumping in the air she suddenly pitched forward head first in a mad somersault, regained her feet in an instant and danced again in gleeful greeting. Later we learned that this crazy pas seul of the backwoods had not been for us alone, but had been repeated for at least one car of the caravan behind us.

This was an extreme, but it gives one an idea of the hurrah of today's greeting to the automobilists, which was a continuance of the wild oration of yesterday in perhaps an intensified form. There was the same flag hanging and waving, the same crowds in village and along the highway, the same "bon-voyage" and "good-bye," and the same kissing of hands and graceful curtsey. There was the same tossing of tributes into the car. Yesterday the bouquets were of wild flowers and even bunches of garden truck were showered on the tourists. Today the bouquets were of roses and tiger lilies and the flowers of the garden. The best were none too good to give the Americans.

Today practically every car in the caravan had flying from dashboard, front seat or tonneau British or French flags, in many cases both. This displaying of their national emblems gave great joy to the Canadians, both English and French, and added fuel to the fire of their enthusiasm.

As we approached St. Genevieve and were climbing a hill a big, strapping farm hand jumped on our footboard, resolved to have an automobile ride at any cost. We had not the heart to refuse him passage to the next checking station, a mile away. Girls begged for rides and some of the cars gave them to them, leaving them to walk back a mile or so, more than contented to pay that for the joy that had

THE CORDIAL WELCOME ACCORDED THE TOURISTS ON THE ROAD FROM MONTREAL TO THREE RIVERS

been given them in the form of a ride.

The day's route followed the St. Lawrence almost all day. To our right the river, now broad, wound its sinuous way. Below we saw at times a checkerboard of farm fields stretching to the banks. Every mile or so we passed shrines, some mere crosses of rough wood with the emblems of the crucifixion, others with lifelike figures of the Savior on the cross within pagoda-like open structures, and others still more elaborately equipped and housed. A pair of tall double spires gave us a long warning ahead of the big church that marked each village. None was more enthusiastic in their greeting than the priests in their long black gowns and wide, curved-brimmed hats.

Save for the fine stretch of macadam boulevard into Quebec, today's road was for the most part marked by the same stretches of sand and corduroy ruts as yesterday's, which again induced the committee to reduce the average running rate to the neighborhood of 15 miles an hour. This proved unnecessarily slow and caused a considerable congestion of early arrivals at the checking stations. With the big

PICTURESQUE AUSABLE CHASM

bunch of clean score ties the running would bear being made more difficult rather than easier.

There were but three penalizations during the day. I. C. Kirkham, a clean score man, fell from grace through a broken spring, which later let down the body and carried the three others with it, and cost him ten points. J. H. McDuffee and A. L. Rich dropped nine and twelve points, respectively, each. Though having good scores neither was on the honor list.

The day's run ended in front of the Parliament building just outside the city gates. The Glidden cup cars were stored in the skating rink near by. Entering the city the tourists were greeted sedately by the swells of town in carriages and automobiles. There was a big kick when it was found that the Frontenac chateau, the headquarters of the tour, could accommodate, owing to its crowded condition at this season, but a third of the tourists. Tonight the garrison band is giving a concert on the terrace promenade, which faces the hotel and overlooks the river below. In the open air café by its side there is clinking of glasses and merrymaking galore. It makes one hate to think of the early rising tomorrow, the hasty packing of the grip, a gobbled breakfast and then another day of jolting over the roads.

POINTS PENALIZED IN GLIDDEN TOUR FROM BUFFALO TO WATERVILLE

No.	Entrant	Cup	Make	H. P.	Tires	Auburn 132.7 miles	Utica 76 miles	Saratoga 96 miles	Elizab'th'n 94 miles	Champl'n 72 miles	Montreal 72 miles	Three Riv. 96 miles	Quebec 98 miles	Jackman 109 miles	Waterville 93 miles	Total 987.7 miles
1	N. H. Van Sicklen, Chicago	G	Apperson	40-45	M. & W	0	0	0	0	0	0	0	0	0	0	0
2	Arthur Holden, Cleveland, O	G	Stearns	40-45	G & J front / Diamond rear	0	0	0	0	0	0	0	0	3	0	3
3	L. J. Petre, Cleveland, O	G	Stearns	40-45	Diamond	0	0	0	0	0	0	0	0	0	0	0
5	J. H. McDuffee, Chicago	G	Stoddard-Dayton	30 35	M. & W	0	0	0	10	0	0	7	9	0	0	26
8	Ezra E. Kirk, Buffalo	G	Thomas	50	Diamond	0	0	0	0	0	0	0	0	0	0	0
9	G. M. Davis, Buffalo	G	Thomas	50	Goodrich	0	0	0	0	0	0	0	0	0	0	0
11	George Soules, Toledo, O	G	Pope-Toledo	35-40	Goodrich	0	0	0	0	0	0	0	0	0	0	0
12	W. C. Walker, Hartford	G	Pope-Hartford	25	Goodrich	0	0	0	0	0	0	0	0	0	0	0
14	P. S. Flinn, Pittsburg	G	Pierce	32	Goodrich	0	0	0	0	0	0	0	0	0	0	0
15	W. E. Wright, Springfield, Mass	G	Knox	35-40	Diamond	0	0	0	0	0	0	0	0	0	0	0
16	R. R. Craufurd, New York	G	Stevens-Duryea	50	Fisk	0	0	0	87	0	0	0	0	0	0	87
18	H. D. Newman, New Orleans		Packard	24		44	25	235								304
20	E. M. Wiley, New York		Clement-Bayard	24-30		6	0	Out								Out
21	Elwood Haynes, Kokomo		Haynes	50		0	0	8								8
23	J. A. Mechaley, Stamford, Conn	G	Pope-Hartford	20-24	Dunlop	0	5	284	0	5	70	51	0	16	0	381
24	C. W. Kelsey, Tarrytown, N. Y	D	Maxwell	36	Ajax	0	0	0	0	0	0	0	0	0	0	0
25	C. F. Barrett, Hartford, Conn	G	Columbia	24-28	Goodrich	0	0	0	0	0	0	0	0	0	0	0
26	F. J. Pardee, Chicago	G	Packard	24	Diamond	0	0	14	00	0	1	2	0	0	0	17
27	P. P. Pierce, Buffalo, N. Y	G	Pierce	40-45	Goodrich	0	0	0	0	0	0	0	0	0	0	0
28	Archie E. Hughes, Philadelphia	G	Pierce	40-45	Goodrich	0	0	0	0	0	0	0	0	0	0	0
30	W. C. Durant, Jackson, Mich		Buick	22		0	0	0	0	0	0	0	0	0	0	0
31	Augustus Post, New York	D	White	Steam	Goodrich	0	0	0	0	0	0	0	0	0	0	0
33	Watson Coleman, Lynn, Mass	D	White	Steam	Diamond	0	0	0	0	0	0	0	0	0	0	0
36	W. W. Burke, New York	G	Columbia	40-45	Diamond	0	0	0	3	0	0	0	0	0	0	3
37	C. G. Wridgeway, New York	G	Peerless	30	Diamond	0	0	45	74	0	0	0	0	17	0	136
38	A. L. Rich, New York	G	Lozier	40	Gaillois	0	0	0	0	0	0	13	12	183	0	208
39	L. F. Braine, New York	D	White	Steam	Jenatzy	97	2	0	54	2	0	0	0	0	0	155
40	J. G. Cassatt, Philadelphia	D	White	Steam	Diamond	0	0	0	0	0	0	0	0	79	0	79
41	I. C. Kirkham, New York	G	Maxwell	16	Ajax	0	0	0	0	0	0	0	10	11	6	27
43	F. H. Peitsch, Chicago	G	Peerless	30	Goodrich	365	0	0	0	0	0	0	0	22	late	387
45	T. F. Moore, New York		English Daimler	30		12	44	23								79
47	J. L. Snow, Boston, Mass		Peerless	30		0	0	0	0	0	0	0	0	0	0	0
48	James Laughlin, III, Berkshire A. C		Cleveland	30-35		0	132	1								133
50	M. S. Hart, New Britain, Conn	G	Corbin	24	Diamond	0	0	2	0	0	0	0	0	11	0	13
51	Ernest Keeler, New York	G	Oldsmobile	28-30	Fisk	0	0	0	0	0	0	0	0	0	0	0
52	R. R. Owen, Chicago	G	Oldsmobile	28-30	Diamond	0	0	1	0	0	0	0	0	0	0	1
53	W. H. Owen, Philadelphia	G	Cleveland	30-35	M. & W	0	0	0	0	0	0	0	0	0	2	2
54	W. L. Davis, Hartford, Conn		Pope-Hartford	20-25		0	0	0	179	0	0	0	0	0	0	179
55	W. A. Danzer, Hagerstown, Md	G	Crawford	24-28	Goodyear	0	0	7	0	0	0	0	0	0	0	7
56	Charles Burman	G	Peerless	46	Diamond	0	0	0	0	0	0	0	0	0	0	0
57	A. A. Russell, Grand Rapids		Harrison	40		155	28	350	0							793
58	S. B. Stevens, Rome, N. Y	G	Darracq	40-60	Michelin	0	0	0	0	0	14	0	0	0	0	14
59	John Banford, Lansing, Mich	G	Oldsmobile	28-30	Diamond	0	0	12	0	0	0	0	0	9	0	21
60	Philip Corbin, Jr., New Britain, Conn	G	Corbin	24	Diamond	0	0	257	0	0	0	0	0	46	0	303
61	T. P. C. Forbes, New York	G	Reo	16	Goodyear	3	0	0	0	0	0	0	0	0	0	3
62	E. R. Lozier, New York	G	Lozier	40	Diamond	0	0	1	0	0	0	0	0	5	0	6
63	J. H. Becker, Clyde, O	G	Elmore	35	Dunlop	2	0	0	0	0	0	0	0	0	0	2
64	W. L. Marr, Jackson, Mich		Buick	30-35		2	2	0								4
65	T. E. Schultz, New York	G	Marmon	30	Diamond front / G & J rear	31	0	0	4	1	0	0	0	30	17	83
66	F. E. Wing, Boston	G	Marmon	30	Goodrich	0	0	0	0	0	0	0	0	0	0	0
67	H. K. Sheridan, Cleveland, O	G	White	Steam	Diamond	0	0	0	0	0	0	0	0	2	0	2
69	B. H. Knowles, Newago	G	Locomobile	30-35	Diamond	0	0	0	0	89	0	0	0	11	0	100
70	Palmer Abbott, New Orleans	G	Oldsmobile	28-30	Diamond	0	0	0	0	0	0	0	0	4	0	4
73	G. G. Buse, Buffalo	G	Packard	24	Fisk	0	0	0	0	0	0	0	0	0	0	0
74	Charles Parvin, Peoria, Ill		Packard	24		21	118	0								139

SPEND 2 DAYS IN QUEBEC

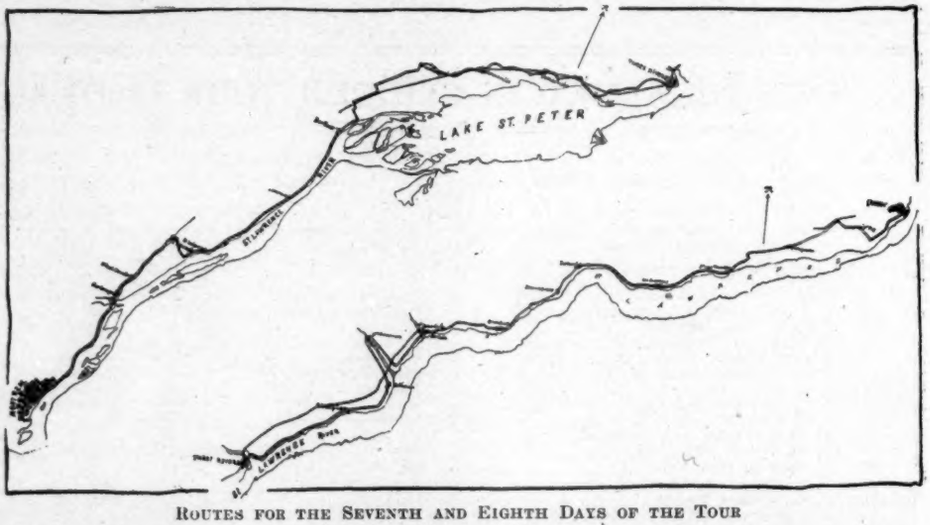
MAYOR OF QUEBEC AND TOURISTS TO WHOM HE GAVE A RECEPTION

QUEBEC, July 22—A round-up of the survivors of the caravan today shows sixty-one cars still following the tour at this point, summarized as follows: Glidden cup contestants, thirty-nine; Deming cup contestants, five; escorting tourists, seven; official cars, ten.

Of the thirty-nine Glidden cup contenders nineteen have clean scores up to this point, and of the Deming trophy contestants four.

In an accompanying table will be found the complete score and personnel of the tour to date, embracing 8 days of actual running. The figures comprise the latest revision of the score by the committee.

The questions of how to cut down the ties en route to Bretton Woods and how to evolve a winner from the clean score bunch now sure to be in evidence at the finish were discussed at length by the committee today. Though nothing has been given out, it is reported that from now on the daily intermediate stages will be shortened, if possible, by increasing the number of checking stations. This will require a closer adherence to the schedule from beginning to end of the day's run and allow less chance for making up delays arising from stops for repairs, adjustments and fuel replenishment.



ROUTES FOR THE SEVENTH AND EIGHTH DAYS OF THE TOUR

PIERCE SIX-CYLINDER SERVING AS PRESS CAR

For the run-off of the tie at the end of the tour it has been suggested that there be a 200-mile non-stop run or that secret checking stations be established, the cars being charged with points for each minute of arrival ahead of or behind schedule, or a combination of both.

Next year's competition and tour are already being discussed. The majority tendency of opinion is in favor of separating the contest from the tour. For the former the plan of securing a course of 200 miles and running the cars over it on the present schedule basis for any number of days determined, all the cars returning to one central garage and headquarters at night, meets with much approval.

Windsor White thinks that the A. A. A. should promote a concentrating tour to the Jamestown exposition next year. To be frank, there are many on the tour who declare that pleasure touring can be followed with greater enjoyment than by caravans.

There has been much complaint of the handling of the hotel accommodations and of the tour. It has been a badly mixed-up business from beginning to end. A professional tour advance man has been the remedy suggested. Superintendent Tucker, however, says that an effort was made to secure such a man, but that the tourist agencies refused to undertake the task owing to the number of tourists from beginning to end not being a fixed or certain quantity. The touring agencies say that in such cases the fees for the tour are paid in advance and the actual number of tourists to be provided for known before the advance man starts out to secure the reservations and rates. On this run the tourists have been up against high, unreasonable and even extortionate rates at almost every stopping place.

SIGHT SEEING IN QUEBEC

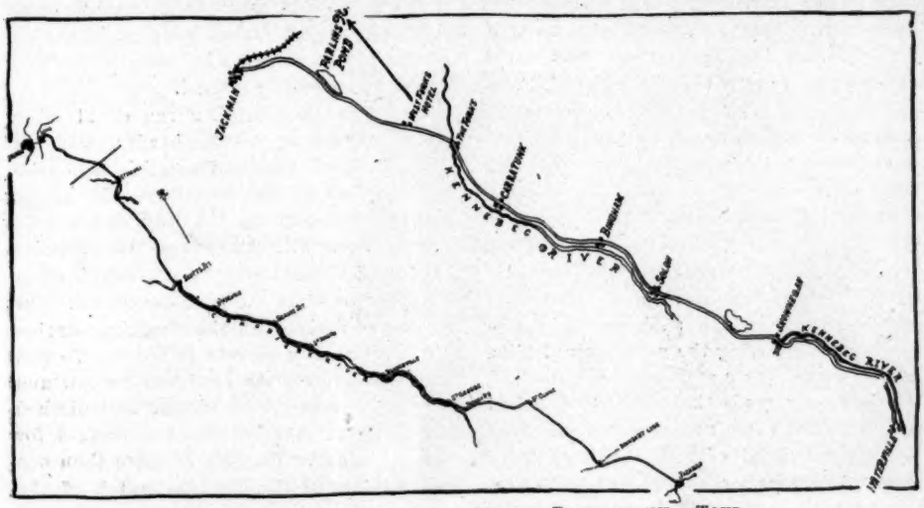
Quebec, July 23—Special telegram—The reception committee of hospitable Quebec did not give the A. A. A. tourists much rest this afternoon. The official welcoming began at noon with a reception by his worship the mayor, at the city hall. Long

strings of the flags of Great Britain, France and Canada decked the entrance. Flags were also draped at the head of the grand staircase and hung from the gallery of the council chamber, where the ceremonies took place. There was a large attendance of Gliddenites. At Mayor Garneau's left stood L. R. Roy, the provincial secretary. After referring humorously to the breaking of the city's water main, his worship said, in part: "I wish to express to you most cordially the welcome of Quebec to you as an association and as individuals. You who are so imbued with sport will appreciate a plain expression of our welcome. Our city will present to you many points of interest, scenic, historic and ethnographic, differing from that of any other city on this continent. We hope that this tour will be the precursor of many visits. Your association is bound to do good. It must naturally make good roads, which from economic reasons are for the benefit of every one. I trust you will enjoy your stay with us."

THE WHITE CONFETTI CAR—NOT A JONAH, THOUGH NO. 13

In replying for the tourists Secretary Gorham of the A. A. A. said, in part: "I wish, your worship, that I might be able to express the pleasure we feel at our reception by not only the people of Quebec but of the province at large. In America the small boys throw stones at us. In Canada they cast flowers. We have enjoyed our trip more than I can tell. I Kent, father of the late Queen Victoria. The visit wound up with a luncheon tendered by the reception committee in the open air theater. General Henry, the American consul, proposed the health of King Edward and President Roosevelt. hope you will accept our thanks."

Next on the program of entertainment was a sail around the harbor in the Canadian government's steamer, the Druid. Many interesting sights were seen, including the ship Arctic fitting out for a polar expedition, the new cantilever bridge now in course of construction, the plains of Abraham, the cliffs which General Wolfe scaled and where our General Montgomery lost his life in a similar attempt. Following the sail the party took a train to Montmorency Falls, ascended the steep cliff by an incline railway, and visited the former home of the Duke of Mr. Glidden toasted the American consul, and the latter made a speech in reply, telling a story of Glidden's fish scales, which once made a new-born baby weigh 42 pounds. Quite a number returned to town in automobiles by the fine road along the high banks of the St. Lawrence.



ROUTES FOR THE NINTH AND TENTH DAYS OF THE TOUR

There was a lengthy meeting of the touring committee today. Rumors of their deliberations indicate the possibility of one or more protest likely to be presented and considered at the end of the tour for illegal repairs alleged to have been made in the night garages if the present formidable list of ties continues to the end.

The question of doing something strenuous to break the present long string of clean-score ties was seriously considered and action at once taken. Tomorrow the contestants will be checked at eight stations, including the finish of the 109-mile run to Jackman. This will mean checking at every 13 miles and would seem to insure a loss of points should there be any stop for tire mending or any repair of consequence.

Another problem that had to be solved was the crossing of the ferry to Levis. It was decided that the contestants should start between 6 and 8 o'clock.

THE FERRY THAT TOOK THE TOURISTS INTO MONTREAL

REACH UNITED STATES AGAIN

IN THE TALL TIMBERS ON THE ROAD TO JACKMAN

JACKMAN, ME., July 24—Special telegram—A small tent for a shelter, a cot for a seat and a dress suit case for a writing table are some correspondents' equipment for chronicling various and varied events of today. As each tourist arrived at the camp he was saluted with a cannon. He found the camp pitched in a 10-acre plot on a plain surmounted by blue mountains. Thirty-four shelter tents accommodating three each occupied four sides of a quadrangle. In the other the cars were landed. A big tent in the center had separate cots for ninety-three, so that 195 tourists were housed beneath canvas at $5 each, with meals extra wherever they could be had. The rest of the caravan found lodging in the small hotel and neighboring farm houses or made an open air night of it around the monster bonfire in the middle of the camp. In each tent a candle set in a tin candlestick on a post driven in the ground was the sole lighting plant. Between the tents were a tin wash basin and soap, set on a post with a bucket of water and a tin dipper beside it. So much for the environment of this night's control, which made one feel like a sure-enough war correspondent.

No more beautiful or varied day's run than this has been encountered by the tourists. The first half of the journey was through a valley, beautiful with well cultivated farms running along the Chaudiere river below. As little old United States was approached the scenery became wilder. The morning most of the way was through virgin forest of pine, along a path that rendered passing well-nigh impossible. Several cars reported having seen deer. Our car encountered several, but they were stuffed and set out as a novel emblem of greeting. The country through which we passed today was less sparsely settled, so the ovation was not so continuous or impressive as on the two preceding days, though at every town and almost every farm house British, French and American flags were displayed. Hospitable as Quebec province had been, there was not a carload but gave a cheer for the U. S. A. as it passed the border house, which marked the beginning of the last stage. As was forecasted in last night's dispatch from Quebec would be done, the number of checking stations was doubled today so that the run was divided into eight stops, for which an average running rate of 15 miles an hour was set. There had been rain last night which made chains necessary for negotiating the mud-covered hills. It was a case of up and down hill most all the way over roads that ranged from bad to fair. Such an arrangement of short controls admitted of few and very brief stops. In consequence there was much hurrying, blocked roads in places, ditched cars, narrow escapes from shutouts and a harvest of lost points. To add to the difficulties there was an inexcusable disarrangement among some of the checkers' watches, which seems sure to give the officials trouble in straightening out the tangle.

The White squadron suffered especially badly during the day. H. K. Sheridan, who had a clean score for the Glidden cup, got three blowouts in the first control. It took 17 minutes to mend two of them. The line was crossed on a flat tire which was mended at the start of the next control. Sheridan had 20 minutes in which to cover the 10 miles and failed to do so by 2 minutes, losing two points. Two subsequent tire replacements had to be made, but without further loss of points. Watson Coleman, who was in the Deming trophy honor list, broke a throttle nut and lost many points. J. G. Cassatt, another member of the White squadron tied for the touring trophy, fell from grace through waste in his gasoline pipe.

A little over half way, a tough nut of a hill was encountered, which at all times had a string of stalled cars on it having chains put on the tires before any headway could be made in the mud.

The seventh control, a run of 11 miles from Armstrong to the border, was the hardest speed task, all conditions considered, yet set by the committee. It was upgrade practically all the way and but 35 minutes were allowed to negotiate it. Point after point was lost over it through sheer inability to make the pace demanded. Car after car arrived at the checking station with less than a minute to spare. To add to its difficulties the road was narrow and cars were delayed by slower and ditched competitors. Another fast run was set for the last stage. The life of more than one car was ended through the watch of the

VAN SICKLEN'S APPERSON CAR, NO. 1, THAT IS USUALLY THE FIRST TO START EACH DAY

final checker being 5 minutes slow. Cars tore down the hill into camp at a terrific pace, only to find that they had time to spare. Accidents and mishaps of all kinds were legion. Theodore E. Shultz had the ill-luck to break the axle of his Marmon. The English Daimler was stranded on the road for several hours until the Pierce six-cylinder came along and gave it some gasoline to help it on its way.

Mrs. Benjamin Knowles of Brooklyn, whose husband's car had had a peck of ill-luck in the tour, lost her pocket-book with $350 in it.

At the finish Charles Burman was ditched in turning too sharply and narrowly escaped serious injury. I. C. Kirkham persevered against the bad luck of broken springs and pushed through on strips of wood.

An interesting annex to the main camp was the open air, shelterless camp of the English Daimler and Darracq crews, including Tom Moore and J. E. Dewar of the former and S. B. Stevens and A. W.

CHECKING STATION ON HILL

Church of the latter. A big camp fire was built. The boys worked, cooked their own meals, entertained dozens of the tourists and took what little sleep they got in their blankets on the bare ground.

When the official score was posted on the flag pole of the camp tonight it was seen by the light of the big fire that the day's disasters had cut from the Glidden three with clean scores, as follows: No. 2, Arthur Holden, Stearns, lost 3; No. 67, H. K. Sheridan, White, 5, and No. 70, Palmer Abbott, Oldsmobile, 4. The committee, when it comes to revise the figures, will reduce without doubt the Sheridan loss to two on account of the checker's watch being admittedly 3 seconds fast. C. W. Kelsey, Maxwell, and Augustus Post, White, are alone left in the Deming contest with a clean slate. No. 40, J. G. Cassatt, White, lost 88, and Watson Coleman, White, 151 points. A whole bunch of other losses were posted as follows: No. 23 lost 9, No. 37 lost 17, No. 38 lost 211, No. 39 lost 2, No. 41 lost 20, No. 43 lost 42, No. 50 lost 7, No. 59 lost 9, No. 60 lost 34, No. 69 lost 18 and No. 62 lost 5.

After nightfall the tourists gathered around the big camp fire and there were songs and doings that were interesting enough to keep almost anybody awake.

PICTURESQUE RIDE INTO WATERVILLE

WATERVILLE, ME., July 25—Special telegram—At the finish flag of today's run stood a pond of lemonade with a cake in it, and as each car came up to the line a number of the local reception committee personally bade its crew welcome and placed in the tonneau a big bottle of Poland spring water. This was a sample of the way the board of trade committee attended to its business. Each tourist found awaiting him at the hotel desk a card of admission to all the local clubs, and another card giving the particulars of the baseball game, band concert and show at the summer theater at Cascade park, gotten up in honor of the Gliddenites.

JUST BEFORE THE START FROM LAKE CHAMPLAIN

In view of all this, following the easiest and most beautiful run of the tour, the travelers a-motor, who are distributed among two hotels and a score of private houses, are in gleeful mood tonight. The committee let up today on its new double-checking system, and also scheduled a new rate of 15 miles an hour over four controls, distributed among the 93 miles from Camp Jackman, so there were few losses of points and a chance to enjoy the splendid ride without hurrying and without fear of penalizations.

In the first place, despite the fact that the route ran through a sparsely settled section and is really up in the backwood section of Maine, the road, though but a narrow ribbon, was a fine macadam all the way. Up hill and down, it ran all day through the most picturesque and varied scenery one can imagine. At times through dense forests of pine and birch, again along hillsides, with a view of the Kennebec river, past logging camps and sawmills below, then along elevated plains with magnificent vistas of distant lakes and mountains, and finally through beautifully cultivated farm lands and down the shady streets of typical New England villages of a nearer civilization. It was worth all the fatigues of the past 2 days to have taken this ideal ride. The villagers and country people enlivened us—if not with thrown kisses and such a profusion of flowers as the French-Canadians—with hearty American cheers and a generous display of the stars and stripes that made us feel we were welcome home in dear old U. S. A. once more.

The run from Quebec to Jackman yesterday was disastrous. It caused sixteen to lose points—Arthur Holden, Stearns; H. K. Sheridan, White; Philip Corbin, Corbin, and B. H. Knowles, Locomobile, had hard luck with tires. C. G. Wridgway, Peerless, had some trouble with his radiator, which does not belong to his car and is too small for it. A. L. Rich, Lozier, hit a stump and displaced his crankshaft. W. C. Walker, Pope-Hartford, put in a front axle and new spring without losing at the control. T. E. Schultz, Marmon, broke an axle and welded it himself at a blacksmith's, and got into Jackman in the early morning hours. Tom Forbes, Reo, broke a spring, mended it with wood, and came through without loss of points. Of today's mishaps the most remarkable one occurred on the hill coming into Bingham. Palmer Abbott in rounding a sharp curve capsized his Oldsmobile, the four passengers escaping absolutely unhurt. A new wheel was fitted and the control made without loss of points. I. C. Kirkham, Maxwell, put in a new axle and two new springs without loss of points, and W. H. Owen, a clean-score man, lost two points through five punctures in the third control. The Clement-Bayard and Cassatt's White steamer had tire troubles, and Sheridan's White still more of them. B. H. Knowles ran into a carriage, tore off two wheels, and was told by the farmer to "never mind; go ahead."

W. W. Burke, Columbia, had trouble with a spark plug. Ed Lozier continues to play the good Samaritan and pull fallen ones out of ditches, to his own loss.

MOTOR AGE

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MOTORPHOBIA DYING

A STUDENT of the automobile and of automobiling, whether an automobilist or not, must now realize the fact that motorphobia is in a precarious condition and cannot long survive. The Glidden tour of 1906 has been responsible to a large extent for its bad state of health. Wherever the Gliddenites have traveled they have, as a rule, been not only decently but royally treated by the non-motoring public, whether in cities or in the country, and, strangest of all, the people of Canada have been more generous than have been the people in this country. Look at the situation carefully and it will be seen that people are not, as a rule, opposed to the motorist who not only conducts himself as a gentleman and who thinks something of the rights of others, but who does not deem it necessary to turn himself into the scorcher class. The Gliddenites have, to some extent, been restrained in the matter of speed—at least to an extent to prevent any great amount of criticism from the public—and this has doubtless helped to keep away ill-feeling on the part of those who are not motorists. Complaint is seldom made about scorching out in the open country, where there is little chance for accident, and technical violations of speed laws are frequently overlooked where it is patent no harm can result from fast going; it is justifiable to complain of scorching when it approaches the danger point. The country will learn after a reasonable time that speeds now permitted are on too conversative a basis and the little ill-will against motorists that exists will die. It is up to the motorist to eliminate any feeling that may exist and prudence and forethought on the part of owners of cars will wipe it out in another year.

WEST'S AWAKENING

IT HAS BEEN the east that has heretofore shown the world what the automobile can do in the way of economy, reliability, endurance, etc., notwithstanding the fact that the west held the first automobile race ever run in this country. The west, however, has gone along selling automobiles in the old-fashioned way and has sold its share. It came to realize, however, that there are still more people interested in automobiles and all that was needed was to kindle the fire a little. There are thousands in the skeptical class and the Chicago dealers' association realized that it would require only a little demonstration to do away with this feeling of doubt. As a result a reliability test was inaugurated, which is being run as Motor Age is being printed. The large entry list—eighty-eight cars having been nominated—indicates the feeling not only of the trade itself but of the individual motorists, who seemingly would aid in swelling their ranks by taking part in the test and thereby advertising the fact that the automobile is a most reliable affair and safe in the hands of thoughtful people. Perhaps it is unfair to say the west is awakening, for all around Chicago there have been contests of some sort, the Windy City having been the one place that was off the map. Reliability, economy and endurance tests, hill-climbs and the like are nothing new to easterners, but they are to Chicagoans, and the interest that is being displayed over the test now in progress indicates that the people are ready to relish such an affair and that the efforts of the dealers will be well repaid by business that will come later after the public sees the results.

SELLING AUTOMOBILES

THE MAN who starts out with the intention of becoming a salesman in an automobile establishment has a greater task before him than he probably imagines; where he might succeed in a dozen other lines he is apt to fail in this. There is as much difference in automobile salesmen as there is between automobiles—there are good ones and there are bad ones. The salesmen may be improved, too, just as automobiles may be bettered, but it will require effort on the part of the individual. As Motor Age stated some time ago, the poor salesman will prove expensive, no matter what his salary, in the long run, and a salesman that does not show improvement is not the kind to keep about any establishment. Selling automobiles is not an easy task, although it is true some automobiles need no salesmen, being of the kind that sell themselves. But this kind is on the limited list—most automobiles are in such a fierce battle of competition that all the best qualities of the salesman must be brought into play to effect a sale. Motor Age publishes in another column a little advice not only to prospective salesmen but to those who have had more or less experience in the business. It is by a salesman acknowledged to be successful and who has had long experience. To follow the advice given certainly will not injure a salesman's qualities and it may improve them in many ways.

THE WEEK

Chicago reliability run furnishes astonishing entry list, eighty-nine cars of forty-four different makes being nominated for contest over Elgin-Aurora course.

Continental entries to the Vanderbilt are O. K.'d, and show two English cars, both Napiers, have been nominated.

Investigation of recent motor bus disaster in England shows driver was at fault in resorting to his reverse.

Glidden tourists reach Waterville, Me.; large number still with perfect scores; two more sections end tour.

Good entry list secured for tour of Bay State Automobile Association from Boston to Bretton Woods.

Labor day road race at Rochester is assured and Senator Morgan gets job of managing it.

Fire in garage of J. W. Cronin at Syracuse, N. Y., does $35,000 worth of damage.

Brescia circuit race postponed because government refuses to furnish guards.

Protest entered over the result of the big motor cycle race in Europe.

Daimler Co. of Coventry forced to go to law to protect its name.

Thirty-one cars nominated for Ardennes circuit races.

COMING EVENTS

July 5-28—A. A. A. tour; Glidden trophy competition.

July 26—100-mile reliability test over Elgin-Aurora course under auspices of Chicago Automobile Trade Association and Chicago Automobile Club.

July 26-August 3—Second annual summer tour of Bay State Automobile Association from Boston to Bretton Woods, N. H., and return.

August 5-8—Touring car competition, France.

August 13—Circuit des Ardennes, Belgium.

August 22-23-24-25—Annual New Jersey coast carnival. W. J. Morgan.

August 27-September 2—Brescia, Sicily, events. Automobile Club of Italy.

September 1-10—Auvergne cup competition, France.

September 2—Florio cup race, Brescia, Sicily. Automobile Club of Italy.

September 9-20—Automobile meet of Pallenza, Italy.

September 15-16—Mount Ventoux hill climbing competition, France.

September 18—Touring car competition of Provence, France.

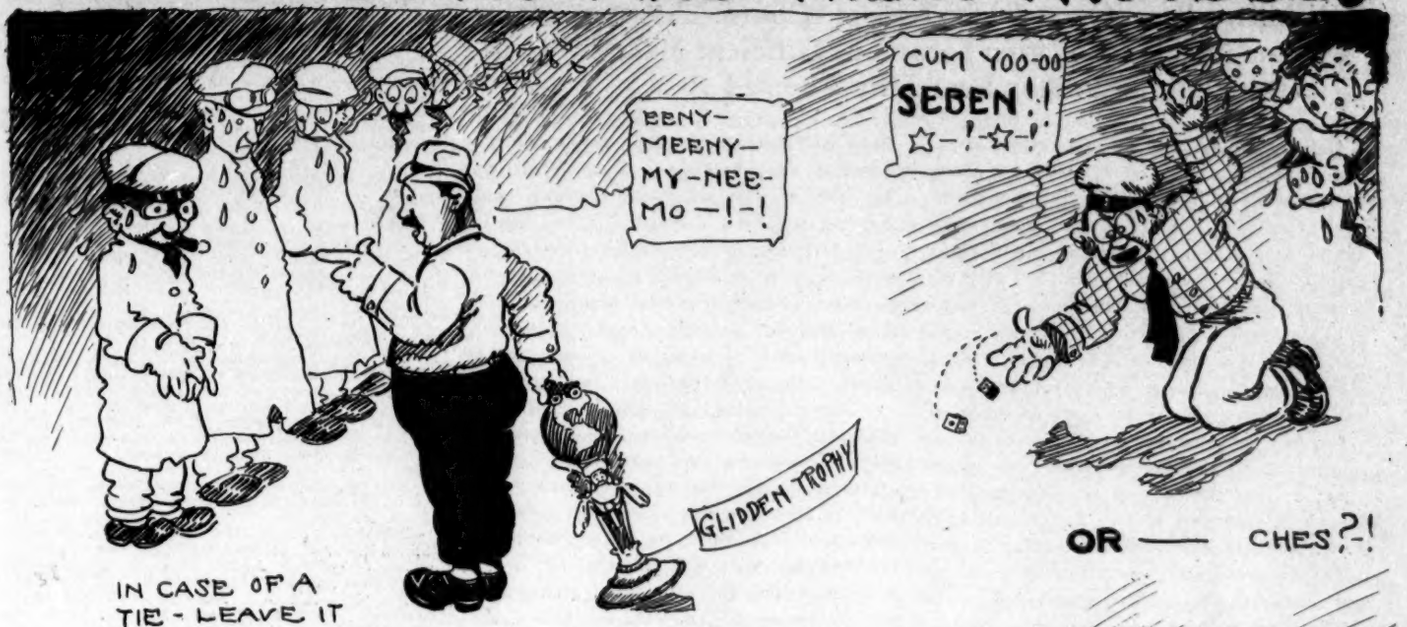
September 23—Semmering hill climbing competition, Austria.

September 28—Auto-Cycle Club of France cup race.

September 27—Tourist trophy race, Isle of Man. A. C. of G. B. & I.

December 7-24—Paris automobile show.

THE GLIDDENITES AND THEIR TROUBLES



LARGE FIELD IN CHICAGO'S TEST

Reliability Run Over Elgin-Aurora Course Attracts Eighty-nine Nominations from Forty-four Different Makes of Cars—Unique Rules to Stop Scorching Adopted

Chicago, July 25—Alive to the realization that they have been losing all kinds of chances to interest the lay public in the automobile, the Chicago Automobile Trade Association, with the Chicago Automobile Club as a silent partner, will tomorrow make its first attempt to promote a big motoring contest—a reliability contest over the famous old Elgin-Aurora century course, and in which penalizations will be soaked on for all sorts of offenses—for failure to arrive at the controls on the minute, for shifting gears, for stopping; in fact the committee, consisting of Joseph F. Gunther, Walter L. Githens and A. G. Bennett, has done everything in its power to avoid any possibility of a tie in any one of the four classes provided.

The start will be made tomorrow morning from in front of the Graphic Arts building at 309 Michigan avenue, in which Motor Age makes its home, and the course to be followed will be to Elgin, thence to Aurora and back to the starting point.

Probably no one was more surprised than was the committee when the entries closed last night and disclosed the fact that eighty-nine cars had been named for the affair. That it is a truly representative field is shown by the fact that in the contest are forty-four different makes of cars and all of them American built. There are nine Ramblers, six White steamers, four Reos, four Cadillacs, four Maxwells, four Autocars, three each of the Pierce, National, Premier, Thomas, Mitchell and Columbia; two each of the Ford, Dolson, Buick, Locomobile, Holsman and Pope-Toledo, and one each of the Stearns, Knox, Berliet, Olds, Apperson, Winton, Pope-Hartford, Aerocar, Haynes, Cartercar, Jackson, Rainier, Stevens-Duryea, Orient, Elmore, S. & M. Simplex, Queen, Cleveland, Halladay, Moline, Northern, Lau-Pearson, Stoddard-Dayton, Lambert and Silent Knight.

There has been a 15-mile an hour schedule laid out for the tour, a pace which should be easy for all and which should prevent scorching, because coupled with it is a penalization for stopping the car or the motor.

That the test is not entirely local is shown by a glance at the entry list, which contains nominations from many other cities. R. M. Owen left New York to take care of itself while he hiked half way across the continent to drive a Reo in the Chicago affair. Jap Clemens stopped figuring on his schemes of breaking more long distance records, jumped into a six-cylinder National and drove here from Indianapolis to fly Ralph Temple's colors on the Elgin-Aurora course. Temple also received help from the Premier factory, which sent two cars here for him to use. Frank Nutt, who was one of the unlucky chaps who qualified for the last Vanderbilt race, only to be thrown out, drove here from the factory at Kokomo in a Haynes runabout and will go after one of the cups tomorrow. The local Maxwell factory stopped work long enough to dig up a couple of cars, one of which will be driven by Charley Price, well known in the old bicycle days, when cash prize racing was first inaugurated and when Zimmerman and Wheeler flopped.

As indicating the interest taken in the tour, it is noted that among the observers nominated is Thomas B. Jeffery, maker of the Rambler, who will officiate. Following is the classified list of entries, giving number and name of entrant, car and horsepower, tires, driver and observer:

CLASS 1—$1,000 AND UNDER

Cars carrying four or more passengers—

No. 2—Mrs. C. H. Foster, 10 H. P. Cadillac; Dunlop; George Farnsworth; C. F. Brewster.

No. 69—Holsman Automobile Co., 10 H. P. Holsman; Firestone; W. Hildreth; O. M. De Launty.

No. 82—R. Bolle, 10 H. P. Cadillac; Dunlop; R. Bolle; no observer named.

Runabouts—

No. 10—Ford Motor Co., 18 H. P. Ford; Firestone; Thomas J. Hay; W. F. Zimmer.

No. 15—Ralph Temple Automobile Co., 8 H. P. Reo; Goodyear; A. J. Nicolet; J. D. McKean.

No. 15—Geyler & Levy, 12 H. P. Autocar; Fisk; Louis Geyler; F. E. Edwards.

No. 39—Waltham Motor Car Co., 4 H. P. Orient; International; J. H. Toole; J. J. Speer.

No. 46—Buick Motor Co., 22 H. P. Buick; M. & W. or Diamond; E. L. Welant; Herbert Kloeber.

No. 58—O. H. Berz, 14 H. P. Mitchell; Continental; O. H. Berz; H. J. Lynch.

No. 68—Holsman Automobile Co., 10 H. P. Holsman; Firestone; V. Bendix; H. K. Holsman.

No. 76—Maxwell-Briscoe-Chase Motor Co., 10 H. P. Maxwell; International; W. B. Jensen; no obsever named.

No. 77—Maxwell-Briscoe-Chase Motor Co., 10 H. P. Maxwell Speedster; International; Charles W. Price; no observer named.

No. 83—S. E. Gillard, 10 H. P. Cadillac; Hartford-Dunlop; S. E. Gillard; A. F. Osterloh.

No. 85—John R. Bensley, 10 H. P. Cadillac; International; John R. Bensley; no observer named.

CLASS 2—$1,000 TO $1,750

Cars carrying four or more passengers—

No. 9—Joseph F. Gunther, 18 H. P. Rambler; Fisk; J. F. Gunther; Thomas B. Jeffery.

No. 12—Thomas B. Jeffery & Co., 20-25 H. P. Rambler; Diamond; Louis Hodgson; no observer named.

No. 21—H. J. Bonney, 25 H. P. Rambler; Fisk; Carl Nelson; J. G. De Long.

No. 24—Ralph Temple Automobile Co., 16 H. P. Reo; Goodyear; W. E. Crosswell; O. F. Wilson.

No. 25—C. S. Neuman; 20 H. P. Rambler; Diamond; Paul Soderstrom; no observer named.

No. 28—Frank Wentworth, 25 H. P. Rambler; Fisk; Peter Lignell; no observer named.

No. 49—Buick Motor Co., 22 H. P. Buick; M. & W. or Diamond; W. R. Willett; A. D. Kennedy.

No. 53—Axel Levedahl, 18 H. P. Rambler; Hartford-Dunlop; Axel Levedahl; E. A. Fitzgerald.

No. 55—Wright Elsom, 18 H. P. Rambler; Wright Elsom; D. McDonald.

No. 66—Ralph Temple Automobile Co., 16 H. P. Reo; Goodyear; R. M. Owen; no observer named.

No. 81—Francis L. Taylor, 16 H. P. Reo; Dunlop and M. & W.; Francis L. Taylor; J. E. Caldwell.

No. 84—G. E. Holmes, 16-20 H. P. Maxwell; Ajax; G. E. Holmes; H. B. Vehstedt.

Runabouts—

No. 32—Hagmann & Hammerly, 18-20 H. P. Carter car; Goodyear; J. Hemwald; no observer named.

No. 35—Hagmann & Hammerly, 20 H. P. Jackson; M. & W.; C. E. Hammerly; F. D. Peoples.

No. 70—W. G. Tennant, 20 H. P. Northern; Diamond; W. J. Boone; E. W. Jenks.

Class 3, cars listing over $1,750 and not exceeding $2,500, cars carrying four or more passengers—

CLASS 3—$1,750 TO $2,500

Cars carrying four or more passengers—

No. 7—Githens Brothers Co., 26-28 H. P. Oldsmobile; G. & J.; H. A. Githens; C. J. Buckwalter.

No. 14—Ford Motor Co., 40 H. P. Ford; Goodrich; J. B. Hedges; E. P. Rice.

No. 17—Winton Motor Carriage Co., 30 H. P. Winton; Goodrich; A. D. Shanks; F. F. Northway.

No. 18—Frank C. Riggs, 35-40 H. P. Rambler; Fisk; Frank C. Riggs; W. D. Howe.

No. 20—Charles R. Morris, 25 H. P. Pope-Hartford; Diamond; Eugene Kelly; Edwin Driver.

No. 23—R. M. Baker, 24 H. P. Aerocar; Continental; R. M. Baker; L. K. Cooper.

No. 27—Ralph Temple Automobile Co., 24 H. P. Premier; no driver named; L. J. Taylor.

No. 29—Ralph Temple Automobile Co., 20-24 H. P. Premier; G. & J.; no driver named; Dr. J. B. Andrus.

No. 37—Clifford Haws, 35-40 H. P. Rambler; Fisk; C. Haws; F. W. Potter.

No. 36—W. A. Akers, 30 H. P. Stevens-Duryea; Fisk; Harry M. Jones; I. V. Edgerton.

No. 38—Mitchell Auto Co., 24-30 H. P. Mitchell; G. & J.; Otis C. Friend; Carl Weyrauch.

No. 40—Hamilton Automobile Co., 35 H. P. Elmore; G. & J.; Gorham Thurber; no observer named.

No. 45—Electric Vehicle Co., 18 H. P. Columbia; Hartford; John Hertz; A. L. Kestner.

No. 48—Branstetter Motor Co., 28-30 H. P. Queen; Goodyear; C. A. Englebrock; C. H. McCausland.

No. 51—Mitchell Automobile Co., 24-30 H. P. Mitchell; Curtis M. Betts; H. P. Moyer.

No. 56—L. P. Halladay, 28-30 H. P. Halladay; Continental; L. P. Halladay; C. C. Wright.

No. 57—C. P. Warner & Co., 30-35 H. P. Moline; Diamond; W. N. Endicott; no observer named.

No. 63—Bennett-Bird Co., 28-32 H. P. Dolson; Goodyear; G. H. Bird; B. G. Sykes.

No. 71—Charles H. Burras, 20 H. P. Autocar; Fisk; C. H. Burras; R. W. Jackson.

No. 72—R. W. Tansill, 15 H. P. White; Diamond; R. W. Tansill; no observer named.

No. 78—Wood Beal, 30 H. P. Stoddard-Dayton; Goodrich; R. W. Leach; B. C. Buxton.

No. 80—Adland Motor Co., 34 H. P. Lambert; Goodyear; V. E. Adland; K. F. Hessenmueller.

Runabouts—

No. 22—Ralph Temple Automobile Co., 20-24 H. P. Premier; G. & J.; no driver named. James Rogers.

No. 26—Frank Nutt, 30 H. P. Haynes; Diamond; Frank Nutt; C. H. Haynes.

No. 30—Mrs. L. T. Roenitz, 15 H. P. White; Diamond; Mrs. L. T. Roenitz; Harry Askins.

CLASS 4—OVER $2,500

Cars carrying four or more passengers—

No. 1—Githens Brothers Co., 40-45 H. P. Stearns; G. & J.; Walter L. Githens; Paul Henderson.

No. 4—George A. Crane, 35-40 H. P. Knox; Diamond; G. A. Crane; R. U. Stiles.

No. 5—J. E. Plew, 18 H. P. White; Goodrich; J. E. Plew; F. M. Sorenson.

No. 6—H. Paulman & Co., 45 H. P. Pierce Great Arrow; Goodrich; Paul Hoffman; A. G. McPherson.

No. 11—Geyler & Levy, 28 H. P. Autocar; Fisk; James Levy; no observer named.

No. 13—N. H. Van Sicklen, 40-45 H. P. Apperson; M. & W.; N. H. Van Sicklen, Jr.; Logan Gridley.

No. 19—Ralph Temple Automobile Co., 40 H. P. National; M. & W.; Ralph Temple; W. D. Steward.

No. 31—Mrs. F. B. Draper, 18 H. P. White; Diamond; Mrs. F. B. Draper; Theodore Smith.

No. 33—C. A. Coey, 50 H. P. Thomas Flyer; Diamond and Continental; C. A. Coey; C. E. Gregory.

No. 34—Rainier Co., 30-35 H. P. Rainier; Continental; E. Q. Cordner; E. Q. Cordner, Jr.

No. 41—S. W. Cowen, 45-50 H. P. Dolson; Goodyear; A. G. Bennett; H. J. Farnham.

No. 42—Martin Beck, 40-45 H. P. Pierce Great Arrow; Continental; Martin Beck; R. J. Randolph.

No. 43—Hamilton Automobile Co., 30 H. P. S. & M. Simplex; Continental; B. C. Hamilton; no observer named.

No. 44—Electric Vehicle Co., 24-28 H. P.

Columbia; Diamond; R. E. Herrington; B. Weinstein.

No. 47—Electric Vehicle Co., 40-45 H. P. Columbia; Goodrich; H. G. Cairns; F. B. Morgan.

No. 52—A. S. Aldrich, 45 H. P. Pierce Great Arrow; Goodrich; A. Monson; Fred Dickerson.

No. 54—W. B. Grammer, 50 H. P. Thomas Flyer; Goodyear; W. B. Grammer; R. Weary.

No. 59—Locomobile Co. of America, 30-35 H. P. Locomobile; Diamond; A. J. Banta; William Hunt.

No. 60—G. K. Spohr, 18 H. P. White; Diamond; G. K. Spohr; C. Jamieson.

No. 61—M. A. Meade, 35-40 H. P. Pope-Toledo; Goodrich; R. A. Meade; P. Haskel.

No. 62—Ralph Temple Automobile Co., 50 H. P. National; W. F. Clemens; no observer named.

No. 64—Ralph Temple Automobile Co., 35 H. P. National; Diamond; T. A. Kincaide; no observer named.

No. 65—Andrew Ott, 50 H. P. Thomas Flyer; Diamond; C. Bentham; W. P. Todd.

No. 67—F. L. Mercer, 15-20 H. P. Locomobile; Diamond; J. Marsh; J. H. Youche.

No. 73—Miss K. D. Swits, 28 H. P. Autocar; Fisk; Miss K. D. Swits; A. P. Taft.

No. 74—Mrs. Mary Stolten, 18 H. P. White; Diamond; B. P. McAlees; E. St. Louis.

No. 75—Max Lau, 28 H. P. Lau-Pearson; Goodrich; Max Lau; R. Christopher.

No. 79—Charles Y. Knight, 35 H. P. Silent Knight; Continental; Charles Y. Knight; Donald Kilbourne.

No. 86—Orlando F. Weber Co., Pope-Toledo; driver and observer not named.

Runabouts—

No. 7—Walden W. Shaw, 40 H. P. Berliet; Michelin; Walden W. Shaw; John Buchanan.

No. 56—Dexter Fairbank, 30-35 H. P. Cleveland; Diamond; Dexter Fairbank; J. C. Kelley.

LABOR DAY DERBY ASSURED

Rochester, N. Y., July 21—The American Cycle Derby now seems an assured fact. The executive committee of the New York State Automobile Association at its last meeting sanctioned it and will coöperate with the Rochester Automobile Club in its promotion. Senator Morgan has been engaged to manage it. It will be run on Labor day over a 25-mile course. The number of starters will be limited to twenty-five in the order of receipt of entry, though no maker can have more than one car if it would shut out a single entry. Stock cars up to 60 horsepower alone are eligible. Lamps and mud guards may be removed, but otherwise the cars must be fully equipped as per catalogue. The prize is a $1,000 cup, which will at once become the property of the winner. The entry fee will be $300. Straightaway mile speed trials will also be run on a splendid stretch of state road constituting a part of the course. Further details may be obtained from W. J. Morgan, manager, Bretton hall, Eighty-sixth street and Broadway, New York city.

CANADIAN FACTORY POSSIBLE

Buffalo, July 23—It is reported here that an automobile factory may be established in Welland, Can., a town located a few miles from Buffalo. John F. Mills, of Buffalo, a stockholder in the Iroquois Automobile Co. of Seneca Falls, N. Y., is the man behind the gun. He is trustee for a company which he proposes to organize to manufacture automobiles in Canada. Mr. Mills has secured a site in Welland for the proposed factory. The town council of Welland in special session recently gave the initial readings to a by-law to fix assessment of the company for $2,000 for 20 years and to grant free water service as well.

RULES ON A TAX QUIZ

Internal Revenue Bureau Replies to Question on Use of Fruit Parings for Alcohol

Washington, D. C., July 24—The internal revenue bureau has received a letter from a certain party, in which it is stated that there are large quantities of fruit and vegetable parings at the various packing houses, which the writer thinks can be used to manufacture commercial alcohol under the denatured alcohol bill recently enacted by congress. The writer wants to know if it will be necessary to have a separate plant from his fruit brand distillery at which to manufacture alcohol for commercial purposes under said law.

Acting Commissioner Williams said in reply that under the provisions of section 3255, revised statutes of the United States, as amended, the commissioner of internal revenue, with the approval of the secretary of the treasury, may exempt distillers of brandy made exclusively from apples, peaches, grapes, pears, pineapples, oranges, apricots, berries, prunes, figs or cherries from any provision of the law relating to the operation of distilleries, except as to the tax on the spirits produced at such distillery. Under the authority conferred by this statute regulations have been adopted exempting distilleries using the fruits mentioned from the provisions of various sections of the revised statutes.

The writer stated he wished to use pineapple, tomato and banana parings, pea hulls, sugar corn cobs and other refuse from canning establishments in the manufacture of alcohol for denaturing purposes. With the exception of pineapple parings none of the several varieties of materials mentioned can now be used in the manufacture of distilled spirits at a distillery set up and operated under the law and regulations relating to fruit brandy distilleries. A distillery at which tomato and banana parings, pea hulls, sugar corn cobs, etc., could be used in the manufacture of distilled spirits, must be constructed and operated under the general law. Such distillery must be constructed and operated under the law and regulations under which grain and molasses distilleries are now operated. Acting Commissioner Williams says the brandy distillery in question could possibly be remodeled and certain additions made to it, and if this were done there would be no objection to using it as a fruit brandy distillery during the fruit season, and as a distillery during the rest of the year.

Concluding, the acting commissioner said: "You will understand, of course, that the law relating to the construction and operation of distilleries has not been changed. The denatured alcohol law simply provides that alcohol manufactured in the usual manner at registered distilleries may be withdrawn from bond free of tax for denaturing purposes, and may be put upon the market after it has been so denatured that it cannot be used as a beverage or in the manufacture of liquid medicinal preparations."

Already there is noted a great interest in denatured alcohol and by the time the bill becomes a law on January 1, there will have been made all sorts of experiments, made tending to bring out the best there is in the fluid for commercial purposes.

WHITE MOUNTAIN TOUR

Boston, July 24—Messrs. Gilmore and Morgan drove over the route of the run to be taken from Boston by the Bay State Automobile Association to the White mountains, and while there attended to the details of the hill-climb as well as of the runs. They are both enthusiastic over the prospects of a most successful automobile tournament. A complete telephone system is to be installed upon the hill where the climb is to be made. There will be a telephone at the Willey house site, another at the start, a third at the "Tug-of-War" and a fourth at the finish. Over a dozen entries have been secured among the bay staters for the climb contest, and Mr. Morgan of New York has received other entries. Among the entries are the following: George Otis Draper, of Hopedale, who will drive his Packard runabout; H. Ernest Rogers, of Brookline, who will drive the Stanley used at Atlantic City and Readville; George C. Squier, with a Premier, to be driven by G. A. Crittenden; Charles H. Morey, of Bemis, N. H., with a White; C. H. Larson, who has entered two Oldsmobiles, one to be driven by D. Huss and the other by Fred Allen; A. R. Bangs, with a Franklin; E. A. Gilmore, with a 35-horsepower Rambler, which will be driven by H. E. Wilson. About thirty bay staters will participate in the tour to the mountains. To join them the New York division will arrive in Boston on Wednesday night and the united party will leave the Bay State Automobile clubhouse Thursday.

LATE NEWS FROM PARIS

Paris, July 25—Special cablegram—The Brescia circuit race has been postponed on account of the government refusing to furnish guards. The promoters have appealed to the king. The annual international motor cycle race has been run and there is a dispute over the result. Cuh is claiming the prize and has made a protest that some of the competitors had a scheme of relays whereby repairs could be made en route contrary to the rules. There seems to be good grounds for the protest, and it is probable the committee will award him the cup. In England there has arisen a protest over the Herkomer findings, objection being made to the way the large cars were treated in the speed curve tables. It is hardly likely, though, that the German committee will grant the revision of the findings of its officials.

DRIVER BLAMED FOR BUS WRECK

Accident on Hill on London to Brighton Would Not Have Been So Severe if Chauffeur Had Not Thrown in His Reverse Gear and Become Confused.

London, July 14—A terrible commotion has been created here as the result of a disaster to a motor omnibus engaged in conveying a party of pleasure seekers from London to Brighton on Thursday last. Some time since the London Omnibus Co. proposed to institute a daily service of buses between London and Brighton, but the 6 hours' journey required did not seem sufficiently attractive to the public and the regular service accordingly was suspended; but the company announced its willingness to provide buses at special rates for such trips. It was an arrangement of that kind which was in operation when the brakes of the bus failed to operate and a lamentable accident occurred, resulting in the death of nine people and the injury, more or less severe, of twenty others out of a total of thirty-six, including driver and conductor. The bus was of the Daimler type supplied by the Milnes Daimler Co., manufactured in Germany at the Industrial car works of the Mercedes concern. Its horsepower was 28-30 and its top gear is stated to represent 12 miles per hour. The accident occurred on a declivity known as Handcross hill. The average gradient is one in eleven and well known to London cyclists and motorists as the most dangerous spot on the road.

It seems that the motor bus was going up to its limit at the top of the hill with about twenty-four of the passengers on the roof. On commencing to descend the driver attempted to put on his foot brake, but found it was not operating, so he states. He then tried the hand brake, which of course operates internal expanding shoes on the back wheel chain drums, but they, too, failed, he asserts—although corroborative evidence is lacking. Then, getting alarmed at the pace which the car had by this time attained, he foolishly attempted to lock the back wheels by throwing in his reverse gear. The result was calamitous. The gear immediately burst, the gear box also, and in some way the car got out of control, possibly through the consternation of the driver at the result of his rash action. The vehicle dashed into the side of the road, struck an oak tree, collapsed and overturned, with the result that eight of the passengers were instantaneously killed and the remainder more or less injured. Two who jumped off when they saw the speed at which the car was going escaped with slight injuries. A remarkable thing is that none of the inside passengers was killed outright, though most of them were terribly cut by the plate-glass windows.

By a somewhat remarkable coincidence two other motor buses belonging to the same company were in accidents on the same date. One was totally destroyed by fire in London, owing to a flooded carbureter becoming ignited, and the other was involved in an accident which carried away a lamp post and injured one person. It is almost certain that these occurrences will focus such an amount of attention and complaint and apprehension on the subject of the motor bus that official action will be taken on the structural points involved. Indeed, that has already been promised in parliament. The frequency with which this particular type of motor bus has taken fire in London may or may not be due to the circumstances to be pointed out, but, in any event, it is certain some police inquiry will be held, and in all probability a regulation evolved which will indicate where the danger arises. In the writer's opinion it arises this way: On the engine in question magneto ignition is employed of the high tension type. The magneto is unwisely placed on a platform contiguous to the carbureter and as there is always a certain quantity of gasoline fumes escaping from the latter it only requires at times an extra hot "short"—a matter of too frequent occurrence, seeing the condition in which these buses are often run—to set the whole business aflame. The remedy is to remove the magneto to the other side of the engine, but if the police authorities form a regution they may insist upon it being completely housed in or placed in some other portion of the chassis.

The unfortunate collapse of the motor bus on the Brighton road might have been averted had the driver kept his head cool and steered for the bottom of the hill. There are turns, of a winding nature, but the road was dry and with no traffic, and he might have escaped with cool and skillful driving. In any event, he could not have done as much damage as resulted from the fatuous attempt to arrest the car by throwing in the reverse gear. The discussion which arose in the press here out of the accident in Ireland some time ago of a similar character may have been the inducing cause for this. In that accident the driver's brakes failed, the vehicle overturned and a woman was killed. It was urged by some of the expert writers that had the driver as a last resource thrown in his reverse he probably would have greatly injured the bar, but the arrest affected upon the flight of the vehicle would have enabled the driver to take it sideways into the bank and so have prevented the serious collapse which followed. Like many of the theoretical advices we get nowadays, that suggestion in practice is seldom likely to be other than disastrous. No driver, certainly a mechanic, would ever dream of putting a reverse gear into operation when a car has attained any forward speed whatever, knowing perfectly well that no mechanism of its kind could be constructed to stand such a shock, consequently even though he might think of it, it would be, as in this instance, not resorted to until any possibility of relief from it would be gone. In this instance the bus seems to have been going at about 40 miles an hour when the fool threw his gear in. At the same moment the top of the bus was struck by an overhanging bough on the road, which swung the car round and caused the calamity. Putting the reverse gear into operation in this way could only be beneficial if it was done the moment the foot brake was found to be faulty, and before the car had attained any speed equal to, say, 5 miles an hour. But in a motor bus 2 miles an hour would probably be sufficient with a 7-ton load to smash up any gear without effecting any practical braking action.

ARDENNES ENTRIES

Paris, July 12—Thirty-one cars will take part in the Ardennes circuit race on August 13, including four Panhards, four Darracqs, three Gregoires, four Mercedes, four de Dietrichs, a Gobron, three Clements, a Corre, three Brasiers, and three Hotchkisses. It is a noticeable fact that the Renault people are fighting shy of this classic, evidently being well satisfied with the work of Szisz in the grand prix. The Renault backed out principally because the weight limit would not permit of the use of movable rims. The Panhards and the Gobron are uncertain starters. The fourth Brasier will have a smaller engine than the other three, while it will be fitted with cardan drive instead of chains. This is a new idea with Brasier, who likes chains for the big cars, but who has been working on a chainless model since the Paris show. Three of the Panhard drivers are Heath, Tart and Le Blon, while the fourth is unnamed. Hemery, Wagner, Hanriot and Croquet are the Darracq men, de Bosch and Tavenaux two of the three Gregoires; Jenatzy, Mariaux, Foxhall Keene and Braun the Mercedes; Gabriel, Rougier, Duray and Sorel, de Dietrichs; Rigolly a Gobron; Clement, Villemain and de la Touloubre in Clements; Corre in a Corre; Baras and Barillier in two of the four Brasiers, while the Hotchkiss men are unnamed.

TALK HORSEPOWER

London, July 15—The horsepower problem threatens to become the hot weather discussion of the present year. Everybody has got something to say on it, but they nearly all come back to the most casual reflections of any motorist. What everybody is looking for is the jumping off spot. Given some agreed starting

point the remainder would be comparatively easy. S. F. Edge suggests that a unit of 1 horsepower developed for every 7 cubic inches of capacity in the cylinder would be an equitable data in this way, but there are people who will suggest that what may be equitable for a Napier engine will probably be found out to be inequitable for others, since there are other circumstances to be considered. The question bristles with unsolved difficulties. We do not know what mean effective pressure in the piston chamber before explosion gives the best results, and we do not know whether or not a variation in that pressure would be necessary under conditions entailed by varying dimensions and piston speeds. One of the most feasible formulæ which has appeared up to the present is the following, although the arbitrary division factors look empirical:

$$\frac{\text{Piston area in inches} \times \text{stroke in inches} \times \text{compression in pounds per sq. inch} \times \text{impulses} \times \text{Number of cylinders}}{12 \times 33{,}000}$$

The British Automobile Club official formula is:

$$\frac{\text{cylinder diameter in inches}^2 \times \text{number of cylinders}}{3}$$

If somebody connected with the movement would set out to arrive at a scientific solution of that phenomena, we would be able to make a fair start, for then the comparative effects of long stroke and short stroke could be settled in favor of the more efficient type.

GRAY DONS WAR PAINT

Syracuse, N. Y., July 22—Notwithstanding an injunction of Special County Judge Hooley, of Jefferson county, New York, on the application of the Black River Traction Co., forbidding Chauncey W. Gray from operating his automobile buses in the city, the buses are still running. "Get right on," Mr. Gray is quoted as saying, "and see whether I will run my automobiles up State street or not." Many offers of help have come to Mr. Gray, who says he has all the rights in State street that any other licensed carrier has. He says that he does not want to trifle with the courts, but he has business to attend to that takes him through State street.

CRONIN GARAGE FIRE

Syracuse, N. Y., July 23—The combination livery and automobile garage of John W. Cronin was damaged $35,000 by fire last night. For a time it looked as if the entire building would be destroyed. The crowd hurriedly ran twenty automobiles into the street and ten men seized the big tank of gasoline that was stored back of the building and carried it to a place of safety across the street. Sixty horses were led out of the barn and turned loose. The garage was but little damaged by fire, although it was more or less injured by smoke and water. Mr. Cronin this summer doubled the capacity of the garage and was doing a big business.

IN FIGHT FOR A NAME

Daimler Co. of Coventry Goes to English Courts to Prevent Others Using Same Title

London, July 14—The Daimler Co., of Coventry, has been called upon this week to pay one of the usual taxes of commercial success. A company was recently registered with the title of the London Daimler Co., with a capital of $5,000, trading in motor cars, etc., and the Daimler Co. of Coventry has been seeking to obtain an injunction in the law courts against the use of such a title, on the ground it would lead to confusion in the public mind, would tend to deceive purchasers of motor cars and would damage the interests of the Daimler Co. of Coventry. At the moment of writing the case is not decided, but as far as it goes the issue seems to be much of a toss-up—a fact largely due to the circumstance that the Daimler Co. of Coventry has been for some time advertising its cars as Coventry Daimlers. This somewhat harmless piece of egotism, no doubt introduced by the thought that the success of the Coventry Daimler was quite as well worth advertising as that of the more famous Mercedes—still a Daimler although not now called it—is like to prove the undoing of the English company, more especially as the Milnes Daimler Co. has been in trade for the past 6 or 7 years without let or hindrance. The question is a big one, affecting the trading value of well-known titles. Hitherto appeals of this kind have been generally decided in favor of the original company, but precedents are always being established, and if this becomes a precedent of the opposite kind it will greatly increase the duplication of titles which are associated with great reputations. Every motorist here knows that the Camstadt Daimlers are never now spoken of as Daimlers but as Mercedes and that when a Daimler car is mentioned it is a Coventry Daimler which is understood. But these methods are ones into which lawyers with an eye to further business prefer not to enter, affecting to be able to consider each case on its own merits.

About a year ago a concern was started here with a big flourish at the Olympian show, to trade in motor cars on the following plan: The public was invited to fill up a printed form supplied by the company setting forth the material particulars of the car they were wishful of possessing. These particulars were to be submitted to a jury of experts who happened to be members of the automobile club and well known in motoring circles, these experts being retained on a fee to give their unbiased verdict in favor of the car on the market which came nearest to satisfactorily filling the purchaser's requirements. The scheme was called "Let the judges decide." It looked a smart idea, and perhaps had it been properly handled and sufficiently financed it might have succeeded, but it is asserted it was in the hands of men who had no money and apparently few scruples. This paragraph from the official report of the receiver in bankruptcy will explain the character of the concern:

"The business appears to have been carried on for a short time in the manner originally intended, but the working capital was very soon exhausted, and from that time irregularities have taken place in dealing with money and motor cars belonging to customers and others. These irregularities may be divided into two classes: Class 1 consists of cases where money was received from customers for the purchase of cars which, although ordered from the makers, were either not paid for or delivered to the customer, or else were obtained from the maker on payment of check drawn on behalf of the company which was subsequently dishonored; class 2 consists of cases where cars were intrusted to the company for sale and the proceeds have not been paid over to the owners. The amount due to customers and makers under these heads is upwards of $15,000."

The total amount of the failure was a matter of nearly $25,000, the assets being practically nil as the stock in trade was seized and sold up for a matter of $150.

NEW YORK'S ROAD WORK

Buffalo, July 23—Edmund F. Van Hoesen, deputy state engineer and surveyor, who recently arrived in Buffalo to inspect stone to be used in the construction of Erie county's good roads, says: "Work on good road construction is going forward all over the state. We have let contracts aggregating about $4,000,000, including 47 miles in Erie county, and work in Buffalo will be started at an early date." Aside from the actual work of construction which will be carried out this year, the state engineer's office is busy with plans for the future. About 43 miles of road have been surveyed, and the estimates of expense, as made by the state engineer, approved by the superintendent, so this much work is ready for 1907. To have work in readiness for 1908, however, new roads must be surveyed and a force of surveyors are now going over them.

VANDERBILT ENTRIES

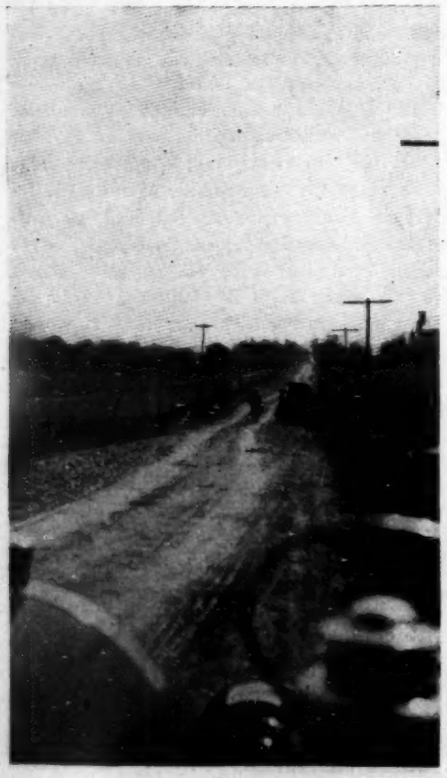
Paris, July 12—That England intends taking part in the next Vanderbilt cup race and has nominated two Napiers was disclosed at the meeting of the organizing committee in Paris, which confirmed the nominations of the following continental teams: France, Bayard-Clement, Clement; Hotchkiss, Shepard; Panhard, Heath; de Dietrich, Duray; Darracq, Hemery. Italy, Lancia, Nazarro and Weilschott in Fiats, many, Jenatzy, Mariaux and Foxhall Keene in the Mercedes. England, Clifford Earp and Macdonald in Napiers.

Hard Tour Through Southland

MR. BROWN'S STEVENS-DURYEA ON A VIRGINIA ROAD

KANSAS CITY, Mo., July 21—"No, it was not really a dare that prompted us to make the trip. And yet, in a way, it was." That is what Herbert Cullen Brown, of Los Angeles, said, in summing up his tour in a Stevens-Duryea from the factory at Chicopee Falls, Mass., to Kansas City, some 2,000 miles over some of the worst roads in the United States and Missouri. George H. Barker, of California, went with him to Memphis. "It was like this," continued Mr. Brown. "We had some business on the way and I was laying out the route, when a friend said to me in a joking way: 'Why don't you go in an automobile?' 'I'll do it,' said I, 'if I can have the extra time it will take to make the trip.' I was allowed this time and I bought the Stevens-Duryea on purpose for the proposed jaunt to the middle west."

There have been trips and tours across the continent—enough of them so that another attracts hardly more than passing comment, but this trip of Mr. Brown's is entitled to go down in a class by itself. It was through a country which has, in most cases, been a closed book to the motorist. If one of the delights of touring is the meeting of unexpected situations and overcoming them with some ingenious resource, this tour may be written down as a delight at least half the time. From the sinkholes on Virginia roads, which left the car up to its hubs in mud when 15 feet away was a good macadam road, to the place in the Ozark mountains of Missouri where five men worked 5 days building a road over which the car could reach a highway after it had pursued its course along dry creek beds and wet ones, is many miles of hard going.



STOP TO HOLD A HORSE

Mr. Brown bought a car without a tonneau and had a flat deck fitted in its place. He had made two trunks, one for himself and one for his companion. These were just the size of the space they were to occupy and were strapped on. There was also a rain cover with closed front and a top for ordinary protection. In their tour, Brown and his companion traveled through New York, Philadelphia, Washington and the states of Virginia, West Virginia, North Carolina, Tennessee, Arkansas and Missouri. In some places they found splendid roads, in others poor ones. They used up two sets of tires all around, almost the entire damage to one pair being done after leaving Memphis on the way to Kansas City. The first part of the journey was made along beaten paths. Leaving the Chicopee Falls factory and rolling into Springfield, the tourists followed the main highway for motorists between Boston and New York. This leads through Hartford and New Haven. The departure from New York was by the Twenty-third street ferry, but Brown says he will never go that way again, as the route was unsatisfactory. Thence the road lay through Newark, where dinner was had. Trenton was the night stop, the odometer showing 79 miles for the run from New York, which was left at 11:25 a. m. Trenton was reached at 5:20 p. m. The roads were in splendid condition, this being April 16. It was that night, upon reaching their hotel, that the Californians first heard of the San Francisco earthquake. Running slowly over good roads the next day brought the party to Philadelphia late in the evening. Leaving Philadelphia, the route lay over the Lancaster pike and the good macadamized roads of eastern Pennsylvania. There was no difficulty in making time and stops were infrequent except for the necessary delays at the toll stations. These tolls varied considerably, the range being between 3 and 40 cents for the varying distances and the character of the highway. The tourists had no fault to find until Coatesville was reached. But from there to Bird-in-Hand the roads were rather poor. The start was made at Philadelphia at 9 o'clock in the morning and the day's tour was to York, 94 miles. The side trip to Gettysburg, which may be made off this route, was not taken by the tourists. Washington was reached by way of Littleton and Crosby crossroads over fair roads, but with some heavy grades. At times these were as steep as 20 per cent and it required considerable skill and maneuvering to travel them. One grade on this line Mr. Brown reports as 30 per cent. Washington to York, 75 miles, was done in a day.

In the national capital the motorists spent some time visiting with some California representatives whom they knew. They also made a still hunt for road maps of any description, but they found the Washington motorist pretty much of a stay-at-home and maps were not to be had. Finally they loaded up with the United States survey maps which bore on the territory they were about to traverse and started for Virginia and the mountains which gave them many a tussel before they finally crossed into Tennessee and stopped for a rest at Memphis. Luray cave and the Natural Bridge were on the itinerary, as well as many other curiosities.

NEVER SAW ONE BEFORE

But if mountain climbing was a thriller, the journey across a railway bridge at Columbia, Pa., on the first day's run out of Philadelphia gave the tourists a taste of what was to come. This bridge, which is planked, is 1⅛ miles long and the tender permitted crossing for $1. The tourists followed a freight train across, but were dismayed when they had gone some distance to see the train back up in their direction. The bridge was not wide enough for both train and automobile to pass. Fortunately the backing ceased and the train went ahead before it had put the tourists into very serious danger.

To Kansas City from Washington Mr. Brown and his companion covered a part of the south seldom explored by motorists and perhaps unjustly neglected. For what good roads there are in this section can be made better and the poor roads can be made good if only there is a concerted effort on the part of motorists. And most of this missionary work must be accompanied by example. Some of the country traversed had already been covered by motor car, for when the tourists came opposite an old darkey she grinned and inquired:

"Is you-all from Pittsburg? Kaze if you is you ain't got nearly as big a cah as my man down in Pittsburg. He comes up here every li'l while."

The old darkey was found in the heart of the mountains, just as were several other things—Bluemont, Va., for instance, where for 6 miles 20 per cent grades make the high gear and all brakes a necessity. The tourists went via Fairfax, while the route would have been better through Leesburg to Bluemont. A fine stretch of 5 miles was found after the crossing of the Susquehanna had been made at Castleman's Ferry. It is called the Winchester pike and recalls the ride of General Sheridan, "with Winchester 20 miles away." It was up that very Shenandoah valley that he rode. The first day out of Washington terminated at Staunton. The odometer showed 93 miles.

Among the scenic spots of this part of Virginia there are many places which are pointed out in connection with Revolutionary history, but Luray cave and the Natural bridge are perhaps the most popular. Before Roanoke was reached, the solitary automobile that was met since Washington was passed. From Roanoke a trip was made into the Carolinas, the cities visited including Charlotte, N. C., and Greenville, S. C. From there the journey was to Knoxville, Tenn., but it will be to the advantage of a tourist wishing to reach Knoxville from Roanoke to go by way of Bristol, so that many heavy grades may be cut out.

A Pretty but Tough Hill in the Virginia Mountains

The battlegrounds of the west, where the tide of the civil war was turned, are well worth a visit. They lie close together—Lookout Mountain and Missionary Ridge, Chickamauga and Chattanooga. Thousands of monuments and cannon mark the memorable spots of the battles. There followed in order Nashville and Memphis, and then the journey went into Arkansas and Missouri, where the zinc ore is mined and corn is often taken from the hills in jugs. It is in the Ozark mountains, where railroads and roads are both scarce, that a well-traveled road is called such because a team goes over it twice a week. The water courses formed the best roads, although the water was sometimes high. In several places the car was laid up until a special road could be constructed for it.

Springfield, Mo., was finally reached, halfway across the continent from that Springfield from which the start had been made. But the tourists were not yet out of the woods. Before reaching Kansas City they had the overflowed lowlands to contend with in the valley of the Marais des Cygnes river, where teams to tow had to be called for aid and boards were used to make a road. Brown's arrival in Kansas City created a great deal of interest among motorists, for he had studied carefully the roads and routes over which he passed. He intends to put this information into such form that it can be used for road maps and thus give motorists some good tours which are now neglected perhaps through ignorance of the roads. After his arrival here, Brown made a start to St. Louis, but found the roads too bad when he left the macadam in the vicinity of this city. He had his car follow him to the Mississippi by rail. The lesson of his trip is simple and it is that the good roads movement needs more of them.

In making this trip Brown had all sorts of opportunities to study road construction and how many improvements could be made which would be of vast benefit to the farmer as well as the motorist. It was firmly impressed on him that good roads are the keynote that means prosperity to the country, for if the farmer is making money he is bound to spend it. The tourist found the farmers awake to the situation and in most cases willing to help in the work of road improvement.

Rapid Transit in the South

She Had a Fr'end in Pittsburg

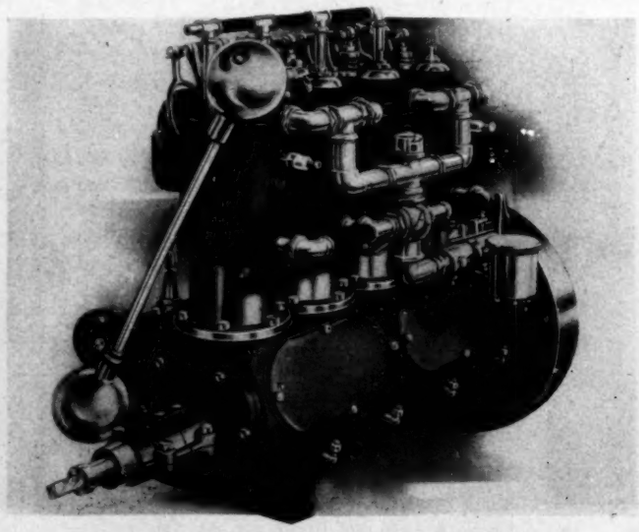
AUTOMOBILE DEVELOPMENT

HARRISON

35-40 Horse-Power

THE MOTOR can be reversed; the exhaust valve lift can be varied from the driver's seat and if desired the valves held open or shut; mixture comes from a carbureter with three control parts; a governor takes care of the commutator; self-starting is accomplished by introducing acetylene gas and air and using special contacts on the commutator; and changes in speed are made on the clutch principle with two gears moved each time. These and several others are a few of the new ideas presented in the Harrison car built by the Harrison Wagon Co., Grand Rapids, Mich. This concern showed its car for the first time at the Chicago automobile show February last, when it attracted general attention. The designer, A. C. Menges, has spent much time in gasoline engine work, and in his motor as well as in many other parts of the car shows constructions very novel. As to what success these will meet remains to be seen.

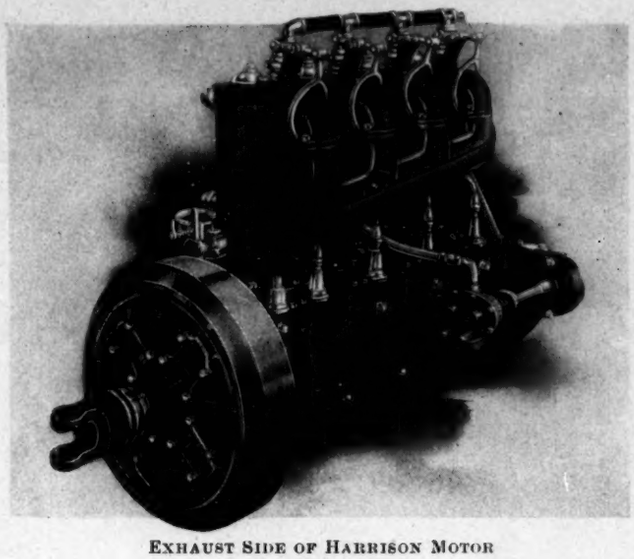
Few four-cylinder, four-cycle, gasoline motors, so brimful with novelties, have appeared on the market as that used in the Harrison car. With its rating of 35 to 40 horsepower, it combines such points as separately-cast cylinders, automatic inlet valves in one piece, plain bearings for crankshaft, five-bearing crankshaft, crankcase and camshaft, pump water-cooling system and jump spark ignition. Although these are many of the interesting features, yet the important part about it is the method of operating the exhaust valves. These valves can be opened early or late as the driver desires, the control of them being from the steering wheel. Should he further desire he can reverse the motor or hold the exhaust valves permanently open or closed. This remarkable and novel valve actuation scheme is best shown by the illustration on the bottom of the following page, in which the right side of the crankcase is shown with the large side inspection plate removed, disclosing the entire valve mechanism. The camshaft A is shown, as is the large spur gear on the right end which drives it at a speed one-half that of the crankshaft. On this camshaft are peculiar disks with face cams, two for each cylinder, or eight cams in all. Four of these disk cams F are rigidly secured to the shaft A and as can be seen have face cams on the right side—two cams on each disk, being placed at 180 degrees to each other. To the right of these fixed cams are other removable cams which are loose on the shaft A but secured to the hubs of the small gears on the shaft, these gears as shown meshing with similar gears on the shaft B. These removable or mobile cams G are free to slide lengthwise on the shaft A and can be partly rotated in the direction shaft A revolves or in an opposite direction. On the left surface these disks G have face cams, two on each, 180 degrees apart, which cams during each revolution are borne upon by the cams on disks F. When these cams thus bear on each other the cams G are slid slightly to the right. Bearing on the plain right surface of the mobile cams are triangular valve lifters E, each pivoted at its upper left corner to a bracket H and having a seat portion on which rests the lower end of the lift rod D passing to the exhaust valve. The moving of disk G to the right pushes the bottom angle of the lifter to the right and thereby raises the seat portion and the push rod to the valve. The rod B is for changing the position of the mobile cams and is controlled from the steering wheel through the connections with the vertical shaft C at the rear end of the shaft. By spiral gears the shaft B can be rotated in either direction. It can be noted that shifting these mobile cams in the direction of rotation of the camshaft A the opening of the exhaust valves can be delayed to any extent, and moving them in a direction opposite to this will delay their opening. By moving the mobile cams one way the motor can be reversed without changing the order of firing. When turning the cams towards the reversing point the first act is to lessen the amount of mixture taken in, and a gradual motion towards the reverse point brings about a gradual slowing, followed by a final reverse. Moving the mobile cams in a direction opposite to that for reversing, the motor is first weakened, and at the extreme of this contrary movement the firing order is changed, causing cylinders one and four and two and three to fire together, the result being the same as that gained in a two-cylinder, opposed motor. The maker claims firing in this manner gives better hill-climbing results than when firing the cylinders separately in the order one, three, four, two. The amount of lift given the exhaust valves can be varied by sliding the mobile cams on the shaft A, which can be done by a separate finger lever. With the maximum exhaust lift the motor power is increased and lessening the lift decreases the motor's efficiency.



INTAKE SIDE OF HARRISON MOTOR

The remainder of the valve opening scheme is practically standard, except that the upper halves of the lift rods have circular openings through which pass the curved parts of the exhaust pipes, this being imperative because of the pipes intersecting the line of lift of the push rods. The exhaust and inlet valves are located side by side in the cylinder heads, exhausts at the right and inlets immediately to the left. Valves are of nickel steel,

with head and stem integral. The port openings are 2½ inches in diameter, the extreme lift is 7/16 inch and the ordinary lift ¼ to 5/16 inch. The carbureter is seen well to the back on the left side of the motor, with its separate float chamber being against the flywheel. The mixing chamber portion is between the float part and the crankcase of the motor. From the mixing chamber a horizontal pipe leads to opposite the center of the cylinders, where it rises, passes through a globular center A, which is a waterjacketed part combining with the water pipes to the cylinders. In this way the temperature of the mixture is slightly raised and the water cooled. Above this jacketed portion the pipe branches out, going to the front, where it subdivides to the two cylinders and the other to the back pair of cylinders similarly branched. Just above the union is an air valve B through which outside air can be taken into the motor to serve as a brake when running down hills. When this valve is in use the ignition is cut out. Three controls are featured in the carbureter. The mixing chamber is a horizontal passage with the air entering at the right and the mixture exiting at the left. Air control is placed in a poppet valve beneath which the entering air must pass, the gasoline enters through a typical nozzle, and mixture is regulated by a poppet valve. The stems of the air valve, nozzle needle valve and throttle are vertical, of the same height and in the same straight line. Passing over the top of them is a horizontal shaft with three adjustable wedge-shaped pieces, one piece over each valve stem and resting on it. This rod has an endwise movement, and when slid in one direction the wedges press on their respective valve stems, permitting the valves to open but a limited distance, and when moved in the opposite direction allows of any desired opening. The control of this rod is from the top of the steering column, and a short movement of the finger lever brings about an adjustment of the entering air, the entering gasoline and the escaping mixture. Should the relative quantity of these three require varying, it is possible to increase or lessen any one by adjusting the wedge piece over it. The gasoline tank, located beneath the driver's seat, is equipped with a patent filling device in the form of a brass globular ended filling tube which when pulled up discloses a large filling hole in the tank, permitting of gasoline being put in without disturbing any of the front seat passengers. A float in the tank column has electrical connections so that a bell is rung when the tank is filled and a similar alarm given when the supply is exhausted to 1 gallon. The tank is of large capacity, carrying fuel enough for a good day's run.



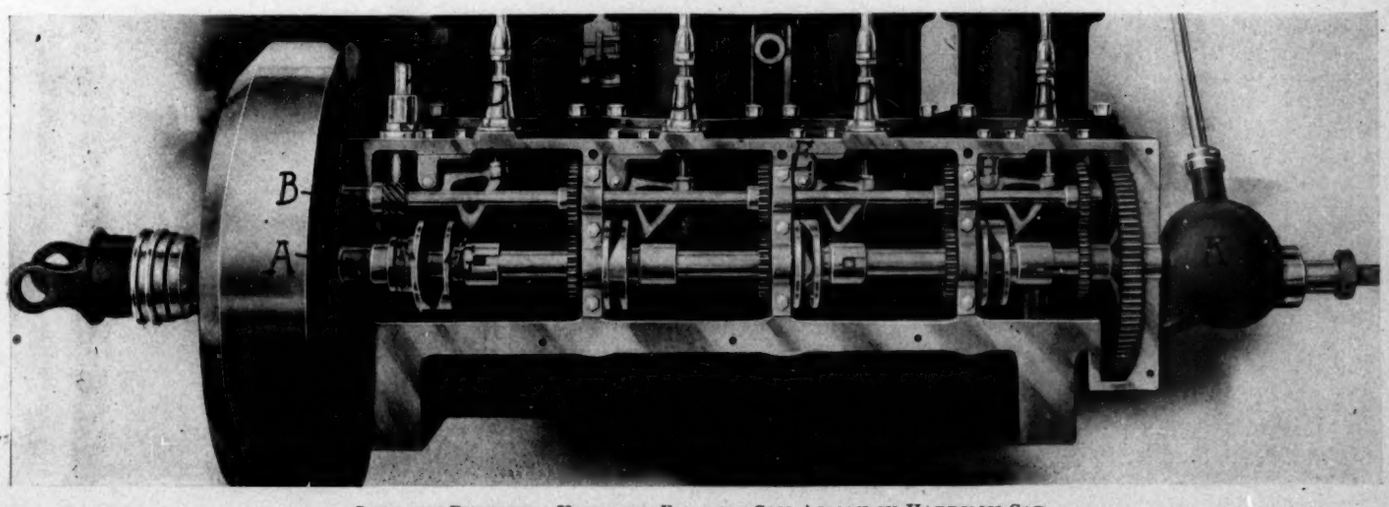
EXHAUST SIDE OF HARRISON MOTOR

Ignition is by jump spark, with plugs carried horizontally in the sides of the cylinder heads. Owing to the motor being self-starting, it is essential to use a complex commutator carried on the rear side of the dash. It is in plain view of the operator and is driven from the front end of the camshaft by bevel gears, a shaft rising to top of motor in front and another shaft taking its drive by bevel gears from this shaft and passing back along the top of the cylinders to the dash. On the commutator is a governor which acts solely on the spark. The commutator has twelve contacts, four of which are a special set used for self-starting, and once the motor is under way the current is switched off these and onto the other sets. The commutator has three circles of four contacts each. All three circles are in one cylindrical fiber sleeve, forming the outer casing of the device. Within this is another, a concentric sleeve, which carries twelve brushes; and on the commutator shaft is a set of three revolving cams. In starting the circle of four points adjacent to the governor is used for igniting the charge, the current being switched onto these contacts for this purpose and then immediately switched off onto the contacts for regular running, which is done from the steering wheel.

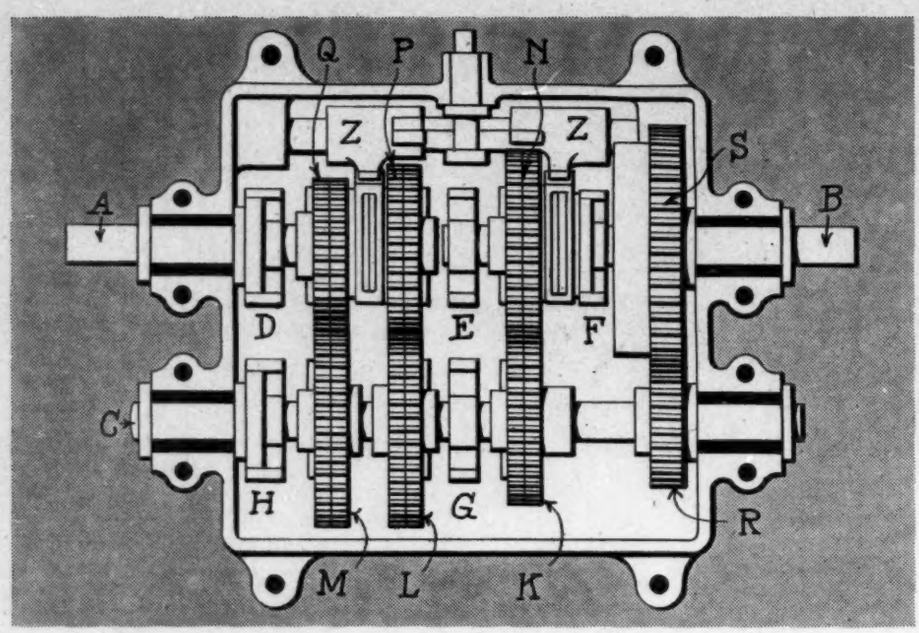
Cooling of the motor is by a typical water system, with a radiator forming the front of the bonnet. In this system an alarm pump is placed, which, should any obstruction get in the system and be of sufficient moment to cause trouble, an alarm is given notifying the driver of the trouble. This is done by having the pump attached to its shaft by a light key, forming the weakest part of the water system. An obstruction may shear this key off, in which case the alarm is sounded.

The self-starting part of the motor consists in filling the cylinder with pure air and then introducing a charge of acetylene gas from the lamp generator. With the cylinders thus charged it is possible, by bringing into service the special set of contacts in the commutator, to have a start every time.

Between the gearcase and motor is an expanding clutch in the form of four radial arms with curved ends resting within the flywheel rim. These shoes are expanded by springs in the usual manner. Between the clutch and gearset are two universal joints, and between the gearset



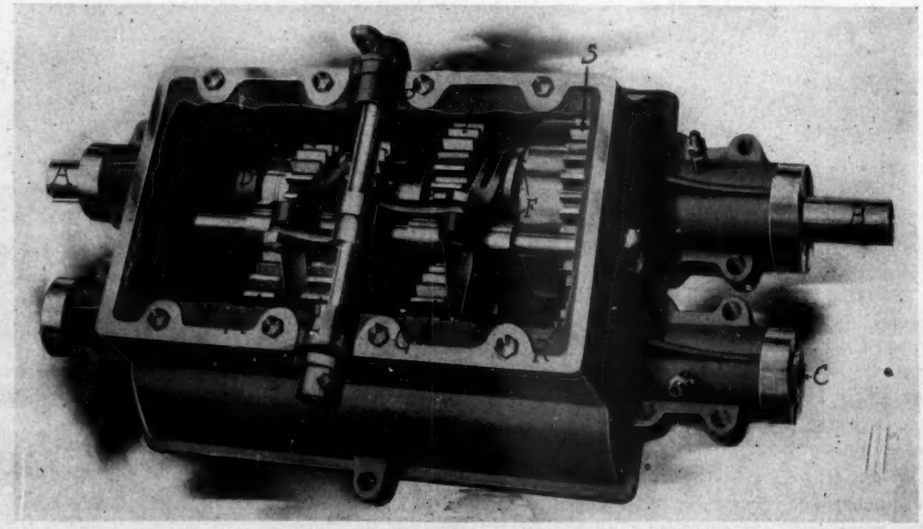
SHOWING PECULIAR VARIABLE EXHAUST CAM ACTION IN HARRISON CAR



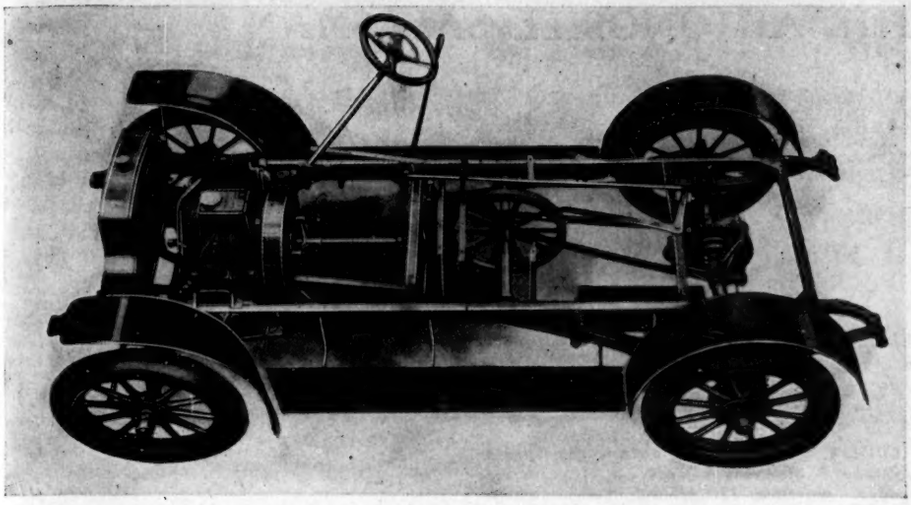
CLUTCH TYPE OF GEARSET IN HARRISON CAR

and back axle are two universal joints.

The Harrison transmission, of the clutch type, affords three speeds ahead and one for reversing, and gives direct drive on the top speed. A feature of the gearset is that the gears are always in mesh, and only those gears actually doing the work revolve thus on direct drive, while all of the gears remain in mesh, still not one of them is revolving on its axis. On slow speed only the gears needed in giving this speed revolve, and so on intermediate speed and reverse. The best conception of this gearset outlay can be gained from a passing glance of the line illustration, which must be looked upon as a rough outline of the gears and shafts, and not a working drawing. In the set are two shafts, a main shaft A coupling with the motor, and a short shaft B in line with the mainshaft and coupling with the back axle, it being understood by the reader that this shaft butts end to end with shaft A as when two lead pencils are placed end to end; but the shaft A can revolve with shaft B idle, and vice versa. On direct drive these two shafts are locked as one by a jaw clutch. In the gearset are five jaw clutches, each of that design in which jaws or teeth interlock much the same as common in the practice of locking the master gear with the front sliding gear in a sliding gear transmission. These five clutches are nominated D, E, F, G and H, the first three being on the mainshaft A and the last two on the countershaft C. One-half of each clutch is made rigid with the shaft it is carried on, and the other half is attached to the hub of a gear of the transmission set, which it locks to the shaft. On the main shaft are three gears, N, P, and Q, all loose on the shaft, so the shaft can revolve and they remain stationary. On the countershaft are three gears—K, L and M—meshing with the gears on shaft A. These gears are also loose on shaft C, but, like those on shaft A, can be locked to the shaft through jaw clutches. On the rear end of the countershaft is a pinion R, made solid to the shaft, and on the short shaft B is a large gear, S, carried on a sleeve on the shaft B, the sleeve being loose on the shaft. At one side of the gearset is a shifting rod Z with yokes for sliding the gears. In this transmission single gears are not shifted, but gears are invariably moved in pairs—when a gear on the mainshaft is moved lengthwise to lock it into its clutch the gear on the countershaft that it meshes with is moved in the same direction at the same time, the gears thus always remaining in mesh. In order that the gears may be thus slid and their mesh still retained a system of shrouding them is adopted in which a flange connects the end of the gear teeth on one gear, the teeth in the meshing gear thus striking on this flange and being carried along with the moving gear. The designer of the Harrison car prefers, however, the making of each gear in two halves, each half a complete gear in itself, and then bolting the two halves together with the teeth staggered so that the edges of the teeth on one half are always opposite the spaces between the teeth in the other half, and when two gears of this design are in mesh slipping one gear endwise on its shaft always results in the other gear being carried along with it. Thus, in the Harrison gearset, by the shrouded or flange gears, when different speeds are obtained a pair of meshing gears is slid. To get direct drive: The gear shifter Z being moved up, the clutch F engages with a similar clutch jaw on the short tail shaft B, thus locking shafts A and B as one, the drive passing direct from the motor to the back axle without a gear in the gearset revolving. For intermediate speed the clutch F is disengaged, and at the same time gear S is automatically locked to the short shaft B. At this time the clutches E and G become operative, locking the gears K and N to their respective shafts, at which time the drive is from the motor through shaft A and gears N and K to countershaft C and then through gears R and S to shaft B and thence to back axle. For the slow or third speed ahead the clutches E and G again come into use, the first locking the gear P to shaft A and the other the gear L to shaft C, the drive then being from shaft A through gears P and L to shaft C and thence by gears R and S to shaft B and to back axle as before. For the reverse clutches D and H serve to lock gears Q and M to shafts A and C, and through an idler—not shown but which is interposed between these gears—a reverse rotation is given the shaft C, from which shaft the drive is through gears R and S as before. It is expressly understood by all readers that before clutches for any particular speed are brought into use the clutches used for any previous speed become inoperative, the gearset practically becoming idle. Because of this there is no chance of two sets of gears giving



HARRISON GEARSET WITH COVER REMOVED



CARTERCAR FRICTION DRIVE CHASSIS

different speeds being in mesh at the same time. All speed changes are accomplished by a single lever operating in an H-slot, and with this lever in a vertical position the gearset is always neutral, making it impossible to get into any of the four positions of the slot without going through the neutral and thus rendering gear stripping impossible. The gearset is selective, the lever having to come to the central position before entering any of the four slots. This allows of dropping from direct drive to reverse or slow speed without passing through gears. The photographic illustration showing the gearset with the top removed has the shifter rod placed crosswise over the top with its connections to the two double-yoke shifters which move the gears in pairs for their respective clutches. One of these sets of yokes attaches to the shifter rod direct, and the other to a sleeve surrounding the rod. Both the rod and sleeve are taken up by the lower end of the speed change lever when the necessary speed is needed.

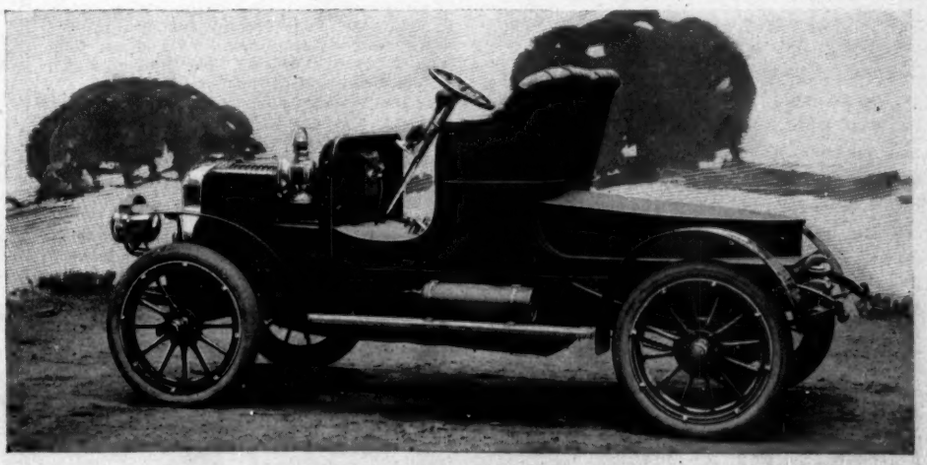
CARTERCAR RUNABOUT

Friction driven motor cars have for several years been experimented upon, largely by several manufacturers, and those makers who have based their all on this form of transmission have in every case produced vehicles capable of giving a good account of themselves. Visitors at the Detroit automobile show last February had an opportunity of studying the simple construction of a light, friction-driven car built by a new firm, the Motorcar Co., of Detroit, a little machine that since its inception a year ago has made a remarkable record.

Power comes from a 20-horsepower, four cycle, two-cylinder, water-cooled motor carried crosswise of the framework immediately in rear of the front axle. The cylinders have a bore of 5 inches and a 4½-inch stroke, and the rated horsepower is produced at a speed of 1,000 revolutions per minute. The two cylinders and the crankcase are formed by two castings, a construction easily accomplished by using a globular-like crankcase and having one half of it cast integrally with each of the cylinders. On the faces of the case are broad flanges by which the two parts are attached together. In assembling it is necessary to mount the crankshaft at the time the cylinders are placed together. In the head of each cylinder is a valve port on the top side, the port carrying the inlet and exhaust valve side by side, the former next to the front. Placing the valves thus means the carrying of the stems horizontally along the top of the cylinders and actuating them from a camshaft located in a compartment resting on the top of the crankcase. The bearings of the shaft rest between this compartment and the top of the crankcase. On top of this compartment is an oil reservoir containing four slow-acting, valveless pumps that force the oil to as many parts of the motor, two leads connecting with the main bearings, and others leading to the cylinders. In cooling a thermo-syphon system, resulting in the elimination of a pump, gives a reliable and simple circulation. Forming the front of the bonnet is a vertical, flat-tube radiator. From the top of each valve port is a pipe leading to the upper part of the radiator, and from the radiator base are other pipes leading to the two cylinders. Thus each cylinder has a separate cooling system with its own intake and return pipes, the common part to both systems being the radiator. Mixture is furnished through a recognized type of float feed carbureter carried in front of the right cylinder. From it a short pipe rises to a point directly above the front end of the crankshaft, where it unites with a couple of pipes connecting with the respective valves. The latter pipes are higher in the center and have a gradual drop to the valve ports.

In transmitting the crankshaft is extended well to the rear of the center of the chassis, where it carries a metallic friction disk. Immediately in rear of this disk is a cross shaft on which is slidably mounted a friction wheel, the rim of which contacts with the face of the friction disk. Mounted on the same shaft as this disk is a sprocket for single chain drive to the middle of the back axle. The friction wheel is slid on its shaft through the use of a side lever, placed in a position similar to the change speed lever on a touring car. By this lever the friction wheel can be placed opposite any part of the friction disk. When contacting with its outer surface at the right the high speed is obtained, and, gradually moving it toward the center of the friction disk, slower speeds are given until it is directly opposite the center of the disk, when there is no speed. Carrying it past the center of the disk will furnish reverse driving. After the wheel is in the desired location for any speed a pedal is required to force the friction disk back firmly upon the rim of the friction wheel. The pedal, if ratchet-contained, holds it there. A special slide coupling is used in attaching the friction disk to the continuation of the crankshaft. Braking is by a pair of contraction bands operating on drums on the rear hubs.

In the running gear a pressed steel framework forms the leading member. Owing to the carrying of the motor crosswise the side pieces are not narrowed in front. Springs are semi-elliptics, 2 inches wide in all four, and 38 inches long in front and 46 in the rear. The wheelbase measures 94 inches.



CARTERCAR WITH RACY RUNABOUT BODY

TIPS FOR THE AUTOMOBILE SALESMAN

EDITOR'S NOTE—This is an article prepared by Edward F. Simmons, of Syracuse, N. Y., recognized as a most successful automobile salesman.

THE salesman who can make a success of selling automobiles should be successful in selling any line of goods. Like many other vocations it requires a man of good address and cheerful disposition, helped out by some talent for repartee, plenty of tact, persistence, patience and attention to detail combined with a knowledge of human nature. These qualities win for him an introduction and pave the way to present his business, while he is acquiring useful knowledge of his prospective customer's financial means and characteristics.

Possessed of these, he knows what chord to strike that will best appeal to him. What are his tastes, pleasures and ways of occupying his time? Why does he desire an automobile? Does he, as mechanical minds do, love a noble machine for its own sake, its complete and finished construction, its power, its perfectly constructed parts, working in unison and harmony, which in time will become as the tones of a piano to the operator who recognizes whether or not each working part is doing its work properly by its tone? Will he enjoy studying its mechanism until he can regulate its power and speed at will, and feel it respond under his hand like a living thing to his moods or emergencies; or does he want it because his friends or business rivals own them and he wants to be "up to date"? Is he sporty, fond of speed excitement, or of the health and comfort for himself and family that comes from out of door life, air and sunshine? All this helps to determine how much money he can or will invest to gratify this desire and also which car will best suit his purpose. The next step is to find out if he has some particular car in mind, as nine out of ten of them have.

It is essential that the salesman have such detail and mechanical knowledge of the car offered that he can explain the whys and wherefores of cause and effect. This knowledge must not be limited to his own line, but is equally necessary of a hundred others that his competitors are trying to sell. To mould a man who has ideas of what he wants, yet inexperienced, and make him fit the car you offer, even after you have converted him into becoming a motorist, is not only a delicate operation but one that is often more difficult than to convince a man who has had some years' experience and appreciates the good points as they are presented to him. The former may have in his desk twenty-five or more catalogues, all very interesting reading and written by men at the head of their profession. These have been studied for days and every detail noted. This stuffed "prospective" begins to ask questions about this and that machine, the whys, etc. Your answers must be correct and logical or he loses confidence in you. When you have lost his confidence nothing but long and thorough demonstrations will regain it.

Some of the most foolish and ridiculous questions are asked, and to reply to these while going over the mechanical points without showing amusement and allowing the question to appear logical requires nerve and tact. You are supposed to know your customer by this time and a demonstration is arranged. Make this ride slow, choose only good roads, dwell on the flexibility of the engine, ease of control, extraordinary safety devices, ease and comfort of the tonneau, quietness of the motor, freedom from smoke and odor, small amount of dust, and how easily the car is handled in congested streets. This may be followed by a minute examination and explanation of each working part. Then some hill work and a little burst of speed on perfect macadam, and an occasional change of gears when completing the journey, bring the customer to the deciding state, "Yes or no." "Yes" may only mean that he has decided to buy an automobile but not necessarily yours. Perhaps his friends and advisers must be pleased and satisfied. Now the tactful salesman must be the resourceful man and use his thorough knowledge of his competitors' machines, for demonstrations, comparative and competitive, must follow. Here enters the driver, who knows "every trick in the trade." This driver should be the salesman himself, else the purchaser may say: "You require an expert driver to handle this machine, while I want a car so simple of construction that I can handle it myself." If he does say this you have met an obstacle that is hard to logically explain away.

After a buyer has been importuned numerous times, you may know that he does not really want to see you again at present. He thinks he wants more time to decide and more advice from some friend. "Don't want to sign yet." Thus he spars for time, although he greets you with a smile that says, "I am glad to see you for a moment; answer two or three questions and go." Now, he must be kept interested and his mind focused on the main points at issue. Here a short story may prove advantageous.

The customer may try to delay the sale by asking you to call later. He is positive there will be at least one car left of the make he desires if he places his order some days later. It does no harm to tell him this story; he may smile, reconsider and sign.

A portly gentleman started for his train a little late—the half mile never seemed so long before. He arrived at the station florid and panting in time to see the train pull out and be mocked by the station master's greeting, "You didn't run fast enough." The reply came quickly, "You are wrong, my good friend. I didn't start soon enough." So may it be with our buyer. He may not start soon enough to place his order that he can get the car he wants this season.

Close the deal at once, now. Don't wait. Be persistent. The purchaser will be annoyed and then forgive and admire you for it. This paragraph from a recent periodical, entitled "The Spirit of the Successful Salesman": "Did you ever try to shut the cat out of the house on a summer night and see her re-enter through all the windows and up the cellar stairs, come down the front one from the attic and all with no annoyance, no resentment,

DON'TS FOR SALESMEN

Don't knock. It don't pay. Bring out the good points of your own car and explain them so logically that your customer can reason out where it is superior to your competitors.

Don't treat your customer as though he did not know a thing about automobiles and you know it all. Such treatment chills him. It is better not to contradict his fallacies, but gradually explain them away, while telling him other things about the car. Every buyer likes to have his opinions respected. This is not jolly. It is only kindness. The jollier is soon found out and distrusted.

Don't make a customer believe you are doing him a great favor in selling him the last machine the factory can furnish this season. He may find out in a few days that you have twenty-four left unsold.

Don't get away from the truth. Silence on a certain point is better, for the lie told in selling one car may be hard to explain if it confronts you when selling another make. Sell cars on their merits, for one satisfied customer gets you two more.

Don't try stunts unless you are forced to. Often the car may not be tuned to the minute. Let the other fellow try first. If he succeeds and you are sure that you can and it is absolutely necessary, go ahead.

no impatience, even, but just as unruffled, determined, ironclad persistence that defied any adjective in the language and every missile within reach?''

December 1 a pocket memorandum was made of fifty influential citizens that could afford to buy automobiles, if they could be innoculated with the automobile fever or could be convinced that the automobile would serve them instead of their horses. It was a question of educating practical business men to new ideas and to a certain extent breaking down some strong prejudices. Not one of these men had ever owned a touring car and only three would confess they ever considered one; today nineteen are riding in four-cylinder cars. How was it done? Persistent work. The agency at this time was doubtful whether to continue this salesman or not. He was confident. Calls were made on each man. No encouragement. Twelve calls a day, 6 days in the week. A demonstrating machine of 1905 model met at least three of these men each day, took them to lunch, to their club or home, always by appointment; a friendly acquaintance sprang up between salesman and his prospects. Appointments were always kept, demonstrations were successful. Each prospective customer was assured he was under no obligations to the agency except to inform the salesman of any one he might know who was considering buying a 1906 car, and also informed that this was only the salesman's idea of advertising his car. The snows came, but so did the salesman and his car. The more severe the weather the more persistent became the salesman for rides. At length, after wagons had been abandoned for 3 weeks, a trip was planned that covered 250 miles and was successfully executed. The car returned without an accident or an adjustment. The newspapers got the story. Then came other trips. These were followed by orders, and the nineteenth order has been received within the last few days and more will follow. ''How are so many prospective buyers found?'' is often asked. The up-to-date salesman is working during all his waking hours. He has made and is making acquaintances, each one of these he impresses with the fact that he can be of great assistance by giving to the salesman the names of those he hears talking automobile. Not long ago, a certain well-to-do merchant hired a car for 2 hours to take a friend sightseeing about the city. This salesman was called by 'phone by five different friends and given a description of the machine by each one, as well as name and address of the merchant. Before this ride was ended the salesman was at the merchant's place of business. This is twentieth century hustling with a vengeance.

A certain wholesaler inquired when called upon: ''Who told you I wanted to buy an automobile?'' The reply not only guarded the informant but also pleased the questioner. ''I came here because I believed that a man of your means and social standing would be pleased to consider the best American-made car on the market, therefore as my salary is earned by looking up customers instead of letting them look for me or go to my competitors, I am here. You would expect the same of your salesman.'' The reply paved the way for a very pleasant conversation.

Perfect coöperation between employers, managers and salesmen is an absolute necessity and a system of payment that destroys this destroys many sales. A complete report of prospects should be turned in and read by each salesman so there is no possibility of contradictory statements or a different line of talk when the customer calls at the salesroom.

Business developments of recent years have made many skepties in regard to the golden rule as a business asset. David Harum's ''Do the other fellow before he can do you'' seems the motto in many professions, but it has no place in this.

LEGAL LIGHTS AND SIDE LIGHTS

KILL A GOOD THING

Up Wilkes-Barre way the senseless cavortings of a half-dozen hare-brained bean-heads have resulted in an order prohibiting the use by automobilists of the Bear Creek boulevard, one of the finest mountain drives in the state of Pennsylvania, and General Oliver, who owns a large estate in the mountains, has limited the use of his fine private roads to horse-drawn pleasure carriages. A similar disregard for the welfare of the vast majority of law-abiding automobilists by the scorchers has resulted in the barring of all self-propelled vehicles from the Elmhurst boulevard leading out of Scranton.

In the light of the above, it was peculiarly timely and appropriate that at last Wednesday's meeting of the new association of Philadelphia automobile tradesmen, whose avowed object is to the ''modification of the existing automobile laws,'' should have adopted the following preamble and resolutions as a formal expression of the association's purpose and object:

Whereas, The owners of automobiles have been deprived in many instances of the rights and liberties possessed by them in common with the general public and users of the highway, by the action of a few irresponsible and reckless operators of machines; and

Whereas, It is to the interest of all automobile owners, as well as the general public, that the laws and other regulations relating to the speed and management of automobiles should be fairly and strictly enforced; it is

Resolved, That we do hereby formally express our disapproval of the operation of automobiles to the inconvenience and danger of other users of the public highways; and it is further

Resolved, That we coöperate with the authorities in their efforts to suppress and punish those reckless and incompetent operators of cars who habitually disregard all proper regulations; and do further

Resolve, That a committee be appointed to formulate a plan whereby the purposes generally expressed in the foregoing resolutions may be practically carried out and the abuse referred to remedied.

The meeting was held at the Hotel Majestic, and the majority of the local agents and branch managers were either present in person or represented by subordinates. At the next meeting President George H. Smith will announce the make-up of the committee which will carry out the association's plans.

QUAKER DRAGNET OUT

Philadelphia automobilists are ''walking the chalk line'' these days. On Tuesday last, as a result of four automobile fatalities in the city since July 4, Director of Public Safety Potter issued an order for the arrest at sight of all owners or chauffeurs traveling at a rate of speed greater than the legal limit. There is to be no more taking of numbers, and requests to ''Call at Magistrate So-and-so's tomorrow at 10 o'clock.'' It's a case of to the lock-up, and durance vile until a magistrate shall have heard the case and decided upon the amount of bail. Before issuing his order Director Potter caused to be laid out on Broad street several measured spaces, where for several days observers were stationed. The reports from these observers showed speeds ranging all the way up to 35 miles an hour. The grand average of all the cars showed a trifle over 17 miles an hour—the local ordinance calls for a maximum of 8 miles and the state law of 10 miles. A portion of the horse-mounted suburban police has been transferred to the business section of the city, and a half-dozen members of the motor cycle traffic squad posted on those suburban roads where the automobilist is wont to ''let 'er out.'' Although the director's ukase was given wide publicity in the local press, each day has witnessed a goodly number of automobilists rounded up in the drag-net. It cannot be gainsaid, however, that the director's radical action has had a beneficial effect, and the tendency to exceed the limit has practically disappeared from Broad street, while on the suburban roads the ''Indian cops'' have already acquired a reputation for ubiquity which has put a sudden stop to the antics of the road burners and squelched their mania for speed.

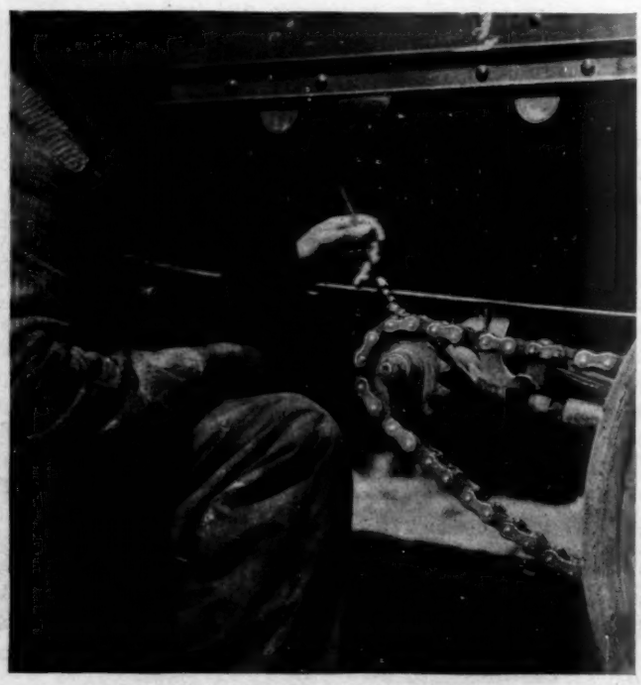
The REALM of the COMMERCIAL CAR

Caring for a Motor Truck Number 2

IT IS HELD WEEKLY

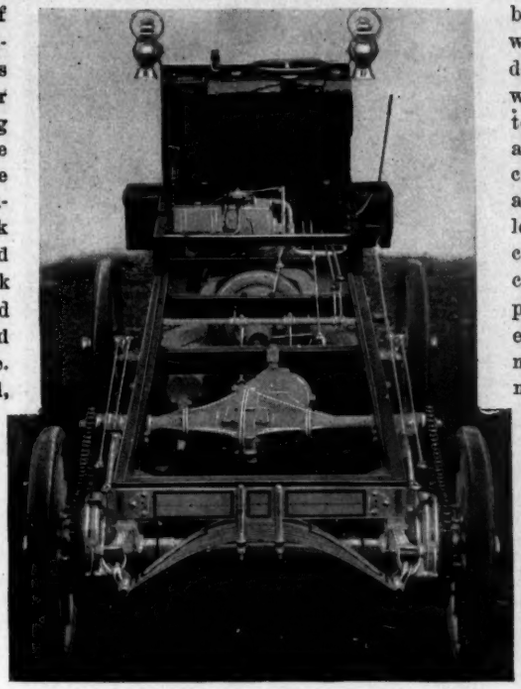
IN this, the second of a series of articles on the care and operation of motor trucks and wagons, the first of the series appearing in Motor Age of June 7, the Packard 1½-ton gasoline truck is considered. The truck, presented to the public in the spring of 1905, drew immediate fame because of its graceful lines and inherent merits—its motor and transmission being but slight modifications of those used in the Packard touring cars, there being nothing by way of an untried or experimental part in the machine's make up. Of the seventy or eighty trucks of this model built many are in operation in New York, the Adams Express Co. operating a fleet of them. Others are scattered through all of the eastern cities and those of the center and west to Chicago and far beyond. A few have been engaged in mining service in Central America, others do stage work in Ohio, still others are similarly employed in Florida and not a few operate in the smaller cities of the land. All have proven reliable in the daily service they have been put to. One or two buyers, as might be expected, have made complaints, but these complaints, when run down, translated themselves into incompetency and dishonesty of the drivers. One case will suffice to illustrate the point. The owner was the daily recipient of excuses from his driver that the truck received an hour's attention this morning, that yesterday the motor stopped during a trip and another hour was needed in starting it and that on almost every other day similar mishaps to the motor or other truck parts were occurring, necessitating delays ranging from 1 to 2 hours. Naturally the owner began to lose confidence. which loss of faith was invariably transferred to the Packard company, with such accompaniments as "truck no good," "mass of junk" and many other derogatory epithets. Confidence in its product was so paramount in the Packard concern that sooner than endure such extraordinary conditions it decided to send one of its factory experts with a pleasure car to the city where the disgruntled truck owner lived and thereby conduct a detective bureau for a few days. The detective, in the automobile, needed but a couple of days to discover the truck's weaknesses. On the first morning of the detective work it left the store with a couple of deliveries, one of which was soon made and then the other, after which the driver hurried to a friend's home, where he made a couple of dollars in drawing him a load of wood. The return to the store was later than necessary and the owner had to solace himself with the excuse "motor stalled and lost half an hour and then had a lot of trouble with the battery and commutator." On succeeding days Mr. Driver continued to play similar rôles, such as wood drawer, furniture mover and others, all of which resulted in nice warmings to his pocketbook but daily detracted from the reputation of the car. The detective sought the owner, explained the situation, met the driver on the owner's carpet and straightened matters out. Immediately the driver was paid off, minus the money made on the side, a new driver was installed and since then the truck has been running every day without a stop and without any overhauling, adjustments or troubles. Other drivers with similar propensities are known, but a story of their escapades is not necessary. So the reputation of a motor truck is often blackened by a grafting driver.

After 18 months' experience in building trucks and after almost that length of time spent in following the performances of its many trucks in the hands of varied drivers, the Packard officials are one in the opinion that care and oiling are the two essentials to successful operation, long life and minimum repairs. The company's factory truck has already covered over 4,000 miles and without a cent of expenditure owing to defective parts or replacements. It has been under the care of a good driver, one familiar with its construction, one who is ready each morning to spend from ½ to 1½ hours inspecting, adjusting and getting it ready for the day's work and one whose leading virtue is vigilance—the all-and-all of a truck driver. In enumerating the many details necessary in the daily, weekly and monthly care of the Packard truck nothing could be more suitable than to recite in a homely, matter-of-fact way just what this factory driver has done to his truck to make it run 4,000 miles without a cent of expenditure.



GREASING THE DRIVE CHAIN WITH BRUSH

Such a performance merits the title of ideal, and the drivers scattered the country over cannot do better than follow his precepts and examples, for what owner would not be satisfied with a truck running this distance without a repair bill? The drivers in general will be apt to take these precepts with a pinch of salt, hiding themselves with such remarks as "his truck was in the factory every evening and had expert attention," "it never did hard work over rough streets," "it was well cared for and saved wherever possible" and many others. Such facts are not the case. The driver was given the command, "Break it if you can; we want to find its weaknesses." The truck has been used as rough as any truck ever should be used; it has carried heavy loads and it has been under the care of the driver only and not daily under the eye of factory experts. The attention it received any common-sense driver could give. Its success is a simple acknowledgment of the fact that eternal care, morning, noon and night; never-ending watchfulness on the part of the driver; careful inspection every morning and night; daily oiling of the many parts; and leaving well enough alone are the secrets of its success. What this factory truck has done any truck in the hands of a reliable driver can do.



CHASSIS OF PACKARD TRUCK

The driver on assuming control of a truck should first prepare himself for 1 hour's work on it each morning before leaving the garage. This amount may not be needed each morning in actual work, but the driver will find plenty of little things to do and look after. Oiling is the first occupation each morning and once a day the following parts of the truck should be lubricated: Fill the 2-quart oiler, although one filling will generally suffice for 2 days. This oiler has a couple of leads to the motor cylinders and from them supplies the crankshaft, connecting rods, camshaft and all parts of the motor and as this is the fast running part of the truck it is imperative that a good supply of oil is always in the oiler and also that this is actually feeding to the many parts when the truck is in use; remove the top from the commtuator and fill the casing to a depth of ⅛ inch with "Packard 24" oil, a product sold by the company to its many users and one guaranteed against carbonizing; in the top of the steering pivots are oil holes; give a little oil to these each morning, using, of course, "Packard 24." At the same time oil the ends of the steering cross connection, the tie rod uniting the knuckles, and don't forget the ball and socket joints as well as the joints of the front distance rods; use similar lubricant on the valve push rods and sleeves and on the bearings of the commutator shaft; the bolts by which the springs are attached to the framework call for a goodly supply each morning, for should they work dry the freedom of the spring's action is impaired and frequently broken leaves can be traced to such a source; in this connection use a little oil between the leaves of the springs; it will work thoroughly between them during the day and besides adding to their resiliency will keep out grit and dirt that is so apt to get between the leaves and hinder their action; a few drops are needed on the clutch pedal joints, the other pedal joints and shafts, the change speed and brake lever shafts, external and internal brake connections, starting crank bearings, clutch shifter fork and the clutch rack pinions and joints. In addition to these essential places where oil is needed, a morning breakfast of Albany grease is needed as follows: On the ends of the jackshaft are compression grease cups which must be filled and each time the truck halts during the day give a half turn to the crosspiece on these cups, thus forcing the grease into the bearing; at the foot of the steering column is a like cup, fill it also and as in the other case a half turn of the crosshead each stop is best. This grease is supplied to the steering gear; another compression cup supplies the clutch bearing and must be the recipient of a morning filling as well as a half turn often during each day. Not to be forgotten each morning is the top of the steering column. In this column are concentric tubes, one carrying the steering wheel, another for the change speed lever and another member for the reverse. These have a bearing against one another and so require frequent oil in order that the steering be as easy as it should. Each night, after the day's work, wash the two drive chains to the rear wheels in gasoline, removing all dirt, and before starting the next morning give them a good coating with Albany grease by means of a medium-sized brush. Each morning open the pet cocks in the crankcase to note if

SPRING SHACKLES SHOULD BE OILED EACH MORNING AND LEAVES LUBRICATED

GREASE CUP MUST BE FILLED EACH DAY

EXTERIOR VIEW OF THE HUTCHINSON REFRIGERATOR WAGON

the proper oil level is maintained—a small amount of oil should flow from the pet cocks as they mark the level at which the oil should be kept in the crankcase.

This careful oiling will not occupy the entire morning period, but other duties are on hand. The gasoline and water tanks must be filled each day; the brake adjustment must be noted; look over the ignition system, seeing that the coil works properly, that the batteries test up, that spark plugs are clean; and turn the motor over to test the compression. The Fulmen battery used for ignition is a French product and when fully charged should do for 500 miles. As soon as it shows the least sign of weakness switch off on to the other cell and have it charged at once. Never allow a battery to be entirely discharged, as the plates will warp and in a short time become useless. A wise plan is to alternate battery cells each 2 weeks, having the weak one recharged in the meantime. The idle battery must be used a few minutes each day to prevent deterioration, and in this connection a good plan is to use it each time for starting the motor, immediately switching off on to the other one.

Leaving the list of attentions needed each morning before departing from the garage, there follows those several weekly attentions which should be carefully bestowed. Many of these parts receive a little attention each morning, but once a week they call for a general "going over." First of all, the steering post must be lubricated, care being taken to turn it to the right and left and move the levers to insure the working of the oil through the post; attend to the spark and throttle levers in the same way; go over all of the brake connections, including the ratchet on the brake lever; with the gear shifter rack in the transmission case, the reverse connections within the transmission case and the forward end of the transmission rod the same due attention must be meted out; repack with light grease the two-to-one gears on the crankcase, and while the cover is off examine the stuffing gland of the water pump to see if it leaks, and if necessary tighten it; drain all of the water out of the radiator and water jackets by opening the pet cock at the bottom of the system and wash out the radiator by allowing fresh water to run through until it comes out as clear as it went in; remove the cap from the bottom of the carbureter and drain off the gasoline—it is here that dirt collects from deposits in the gasoline; remove the drive chains from the back wheels and jackshaft sprockets, wash them thoroughly in gasoline, clean the sprockets with the same liquid and after replacing the chains grease them thoroughly; remove the bottom half of the crankcase and after washing it out with gasoline replace and fill to the proper level with oil.

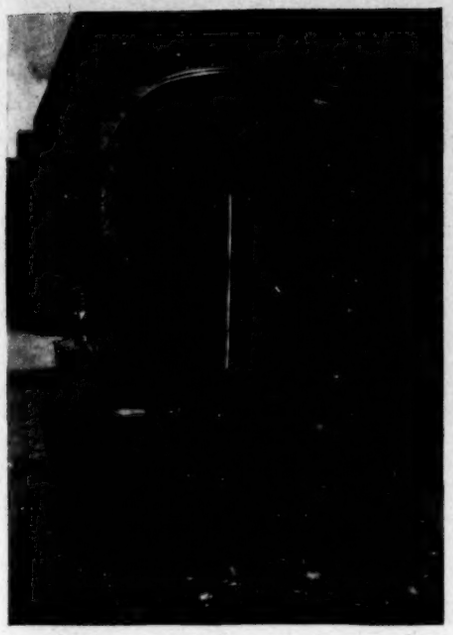
In the "once a month" category comes first the removing of the bottom part of the crankcase. After draining off all of the oil, washing it out with gasoline, replacing the plugs, returning the case and then refilling with oil to the proper level, that is until the oil commences dripping from the pet cocks left open for this purpose. Treat the transmission and differential cases the same way, using sufficient gasoline for washing out the many parts, after replacing the cases being certain that the level of oil is up to the standard. Repack all of the universal joints with a light grease and replace the covers properly. Take out all of the spark plugs, cleaning them and after replacing be certain of the proper wire connections. Remove the front and rear wheels, wash out the Timken roller bearings with gasoline, clean everything well and then repack with Albany grease and replace, getting the adjustment proper. In addition to these features might be added the slight application of a light grade of castor oil to the clutch. Should the clutch drag or not release promptly; this is a good remedy, but should it slip too much then an over quantity of oil has been used and nothing but a thorough washing with gasoline will answer. So much for the monthly care of the machine.

Added to this threefold inspection and care can be added the general overhauling of the car, which, if it is working steadily every day, should take place every 6 months in order that not a single part of the machine is roughly treated.

Finally comes the operation of the truck. The load should be evenly distributed and it is as senseless to expect a 1½-ton truck to carry an extra ton and not be strained as to look for one horse to haul a two-horse load without injury. In starting always retard the spark to a safe position, thereby avoiding a nasty back kick; in starting with a heavy load have the spark well retarded, advancing it as soon as the vehicle is under speed. Invariably have the low speed in when starting and advance regularly from second and to high when on good roads. On poor roads and hills use either the second or low speed as the occasion dictates. Using these speeds removes much of the strain from the motor when on poor roads. Watch the oil sight feeds, thus feeling certain that a due allotment of lubricant finds its way to the many parts of the motor. Do not be content in average service unless the truck is making 10 miles to the gallon of gasoline.

The motor truck is like the horse—you cannot drive it at top speed for long without serious consequences. It has to be coddled and coaxed to get the best service

FRONT VIEW, SHOWING ICE DOOR



SHOWING REFRIGERATOR DOORS OPEN

out of it. Never drive it at over 12 miles an hour on good roads with a load, and it will be better for truck, driver and owner if 10 miles is made the pace under such conditions. Even at 10 miles an hour it is performing the work of two or three two-horse teams carrying the same load. Take all bumps gently, slow down; a driver is much more apt to keep his job and do more work by this precaution even if he does lose a few seconds. Under no consideration use a high speed on rough roads.

The capabilities and limitations of the motor truck are today known quantities. A couple of years ago these were much a matter of speculation; now they are not. Today owners are learning what a truck can and will do and are properly charging carelessness in operation to their drivers. With proper treatment the truck is good for more hours each day than any driver cares to work, and it will be fresh and ready for business the next morning.

The procuring of drivers for its truck has not in a single case been neglected by the Packard Motor Car Co., Detroit, Mich., the builder of this truck. In most cases the most trustworthy driver of the concern buying the truck has been selected and frequently these drivers are placed on the trucks without having spent any time at the Packard factory or in one of their agencies in other towns. In such cases the factory expert in the truck line first of all explains the driving of the machine, taking the novice on the seat beside him and teaching him first how to change speeds and then how to regulate the motor. As soon as this is accomplished the novice takes the steering wheel and with the truck running slow guides it, maneuvers on the street and travels on the different speeds until these movements are accomplished automatically. The driver, now capable of guiding and controlling the truck, is next introduced to its construction, and should the expert be breaking in three or four drivers an impromptu school is organized. The motor is explained, telling the four stages of each explosion, the speed at which it operates, why it requires such careful oil and how the cooling is accomplished. Then a few of the elements of the electric system are revealed with such information as advancing and retarding of the spark, battery care, coil care, and attention needed by spark plugs. The clutch is easily mastered and the transmission needs but little attention. The driver, thus presented very hurriedly to the machinery plant, must place himself as a boy starting to school who knows but the alphabet. His period at school continues until he stops driving the truck. His success or failure as a driver depends entirely on himself. If vigilance becomes his watchword, success will be his guerdon. From the start all repairs must be done by himself; in this way he learns of the truck's construction and incidentally realizes its capabilities and limitations. Should any part break he should do the replacing; the driver who does not have to do this often enjoys the holiday or half holidays while the replacement is being made so much as not to feel badly when a break occurs.

The motor truck is not a difficult mechanism as often reported by many drivers. To the ignorant it is a mountain of mystery, but to the intelligent person who has a mind to learn, even if not mechanically educated, it can soon be thoroughly mastered. Repairs on it are as on any other piece of machinery, soon made but not without special care.

MOTOR CAR REFRIGERATOR

"I am in the butter business and have come to town to purchase an electric delivery wagon for distributing butter to my many St. Louis patrons." So spoke Mr. Hutchinson, of the Hutchinson Produce Co., Hutchinson, Mo., to George Crane, Chicago representative of the Knox Automobile Co. Why the buyer drifted into the salesroom of the Knox concern where air-cooled gasoline cars are retailed remains unknown, but it is sufficient to state that before leaving he had decided that an air-cooled gasoline car would be just as suitable for delivering butter as an electric. Naturally the first objection the buyer urged to this type of vehicle for the butter trade was the heat of the motor, fearing it would be sufficient to destroy the butter before it reached its destination. Where there's a will there's a way and in this case the way led to the installing of a modern refrigerator within the box of the single-cylinder Knox car the butter man soon decided upon purchasing. Filling the entire space within the delivery box was placed an ice box, the entrance to which was through a pair of double doors, reached through the back double doors of the vehicle. Above the driver's seat is a small door, through which the ice necessary for maintaining the butter at a low temperature is put in. The car is a complete refrigerator car, having accommodation for enough ice to last for the greater part of a day. In this machine the motor is carried amidships, being almost beneath the seat of the driver, and in this position is fairly well removed from the carrying space, though not so well as if located beneath a forward bonnet. Exteriorly the little butter wagon is almost as interesting as internally. The wagon, designed for night as well as day use, has as mural decorations a small boy applying a heavy coating of butter to a small biscuit with the words above, "Put it on thick." Below this is the gilt sign of the maker. By day the design is prominent and at night a cluster of four small incandescent lights, screened beneath a shade at the top of the body, casts a brilliant light over the entire side of the vehicle, making it doubly conspicuous. In front, resting on the canopy top over the driver's head, is an electric sign with the word "Premium," being the special brand of butter handled. Electricity for both of these lights is furnished by a small generator belt driven off the flywheel of the motor.

BREWERY ORDERS TRUCKS

The second largest order for motor trucks ever placed in Indianapolis, Ind., has just been placed with the Indiana Automobile Co., of that city, by the Terre Haute Brewing Co., of Terre Haute. As a result the Indiana company has gone into the truck manufacturing business on a small scale. The order includes several light Cadillac trucks which are being built from model M Cadillacs. Platform bodies 4 by 5 feet are being built on the chassis. Knox trucks are also included in the order, and a 2-ton Knox truck has just been received. The trucks, as rapidly as completed, will be placed in delivery service in Indianapolis and Terre Haute.

SHOWING THE REFRIGERATOR DOORS CLOSED

TACOMA COUNTRY CLUB AT AMERICAN LAKE

Car for Pastor—Women in the congregation of the Rev. E. V. Shayler, of Oak Park, a suburb of Chicago, have raised enough money to buy an automobile for the minister, to be used in his work.

Kansas City Election—At the annual meeting of the Kansas City Automobile Club the following officers were elected for the coming year: President, W. W. Cowan; first vice-president H. G. Blakeley; second vice-president, I. E. Bornheimer; secretary and treasurer, E. J. McNamara. A touring event will be held in the near future.

Hoodoo Window—It looks as if the George N. Pierce Co. has a hoodoo window in the front of its Main street store in Buffalo. Last winter the glass in the window was shattered as the result of a fierce wind storm. Some time later an employe of the company, whose duty it is to open the store in the morning, found a big hole in the glass. In what manner that break occurred was never ascertained. The glass in the window was broken for the third time a few days ago. A light runabout was coming down Main street. When in front of the Pierce store the front wheel on the right side came off the axle, ran across the sidewalk and plumped into the hoodoo window.

Washington Club Opens—A gala event in the Washington automobile world was the opening of the new clubhouse of the Automobile Club of Washington, which took place Tuesday evening. An address of welcome was made by President Duvall. After the clubhouse had been formally turned over to the house committee, President Duvall in turn called on District Commissioners West and Biddle, Police Court Judge Kimball, and Superintendent of Police Sylvester, for remarks. The new clubhouse is in the middle of a grove of trees about 4 miles from the city, being reached either by the Brightwood road or by way of Rock Creek park. The building is of the familiar bungalow type, having a frontage of 65 feet. The main room is 36 feet wide and 20 feet deep, and has a large brick fireplace built on colonial lines. In the rear are retiring rooms, while upstairs is a large attic that will be used as a billiard room. At the front and along the sides is a spacious veranda. The club has been in existence less than a year and has been a success.

Little but Oh, My!—Easton, Pa., with an automobile census of 130—counting in the neighboring towns—will have a motor car parade next month if the efforts of a few of the more enthusiastic devotees of the sport pan out.

Fox River Valley Boulevard—The Kane County Federation of Women's Clubs is agitating making a boulevard of the fine bit of road running from Elgin to Aurora, over one leg of the Elgin-Aurora century course just outside of Chicago. This is known as the Fox river road, for it runs along the river of that name and is already almost good enough to be classed as a boulevard.

Car for Skat Player—Otto Kemp, of Hustisford, Wis., found it worth while to come here and participate in the ninth convention of the North American Skat League, which closed recently at Convention hall, Buffalo. When the list of prize winners was read from the stage, it was announced that Mr. Kemp, with a total of twenty-five winning games to his credit, had captured the first prize, a Cadillac touring machine. The game of skat is played with cards and is popular among Germans.

Through Road to Syracuse—A through state road from Buffalo to New York bids fair soon to be a fact. Before next fall, it is expected, it will be possible to go from Buffalo to Syracuse on improved highways, and it seems probable that about the same time improved roads east of Syracuse will be completed to Albany and New York city. Contracts have been let for the improvement of the roads from Buffalo to the Flower city. Roads to be built in what is known as the middle division of the state next year will complete a macadam road from Rochester to Syracuse, and roads are either under construction or in preparation for construc that will bridge gaps from Syracuse to Albany and New York city.

St. Joe's Club—The St. Joseph Automobile Club of St. Joe, Mo., has been organized with the following officers: President, Husten Wyeth; vice-president, L. T. Golding; secretary, R. E. Culver; treasurer, Henry Krug, Jr.

Means Business—The Cattaraugus County Automobile Association held its annual session at Olean, N. Y., recently and elected: President, Daniel P. Ray, Olean; vice-president, C. S. Gibson, Salamanca; secretary, George Forbes, Olean; treasurer, Clair Willard, Allegheny. Committees were appointed as follows: State legislation as to good roads, J. S. Whipple, Senator A. T. Fancher and A. J. Volk; to wait on Superintendent of Public Works Franchot relative to the repair of the roads on the Indian reservation, J. S. Whipple, Peter Foley and D. P. Ray.

Road to Niagara Falls—When the work of highway improvement along what is known as the river road is completed the ride between Buffalo and Niagara Falls for automobilists will be one of the finest in the state. For a long time complaint has been heard regarding the condition of certain sections of the river road, and those who are particularly interested will be pleased to know that the work will be completed in about 10 days. There were many vexing delays, but the last obstacle was overcome about a week ago, and the work of grading and filling in that section of roadway is now progressing well.

Long Motor Boat Race—The British Motor Boat Club's long distance race from Gravesend to Cowes was the most successful long distance event of its kind held here, only two out of eight starters failing to cover the course of 175 nautical miles. The sea, while not being stormy, was decidedly lumpy, with a strongish breeze blowing. The fastest boat proved to be the John, which covered the journey in a few minutes over 23 hours. The Thornycroft 60-horsepower Firefly was not permitted to start as a competitor, owing to not complying with the rules as to freeboard. She, however, started 2 hours after and finished in front of the fleet, her

NEW HOUSE OF THE WASHINGTON AUTOMOBILE CLUB

average speed being just over 10 knots per hour. Napier Major won the race on time allowance and St. Helena took a special gold medal for boats using paraffin alone for fuel.

Farmers Sore—The Lima Regulators have been formed by twenty-six residents of Lagrange County, Ind., and it is said they will make a fight on automobilists, although the object of the organization is said to be for the mutual protection of the members against thieves and the apprehension and detection of horse thieves.

Eggs for Scorchers—Residents along Military avenue, between Forty-second and Hamilton streets, Omaha, have threatened to bombard scorchers with eggs unless the fast driving along their street stops. It was not so long ago that this same bunch of citizens stretched barbed wire across the boulevards to catch the speed maniacs, but this failing to do the work they are falling back on hen fruit.

New Orleans Says Stop—New Orleans has lately been having her troubles with automobilists who persist in exceeding the speed limit while driving their machines. For a year and a half there has been a city ordinance regulating the speed of automobiles, but it is only within the last few months that Mayor Berhman has found it necessary to enforce it strictly. That he is now determined to do so is evidenced by the fact that within the past 4 weeks probably ten people have been arrested for violating this ordinance.

Committee of Charleys—The millionaire fire-fighters of Wayne, Pa., the majority of whom drive their own automobiles, are naturally prejudiced in favor of self-propelled vehicles, and at their monthly meeting last week decided to send a committee of three—Charles H. Stewart, Charles Wilkins and Charles Clark—to Springfield, Mass., to secure an automobile fire engine. The company's present outfit, owing to the hilly country, is a veritable horse-killer, and it is believed the purchase of a self-propelled engine will be decidedly economical in the long run. The necessary funds have already been subscribed by the residents of the district.

Sounds Good, Anyway—From Springfield, Mass., comes the story that Andre La Roches, living near that city, has transformed his automobile into a wood-sawing machine, which, inside of 6 weeks, La Roche is sanguine will pay for the car. La Roche has applied for a patent for his device, which now holds the wood-sawing record of western Massachusetts. La Roche can cut a cord of hard wood into stove lengths in 28 minutes. He has for a week been riding from house to house, backing his car up to woodpiles and reducing them to kindlings in a twinkling. The news of his remarkable invention has traveled and La Roche has received an invitation to take his machine to one place and tackle a woodpile which will occupy him a year. La Roche will accept the offer, which, he says, means a net profit of $3,000.

Drops the Bars—Colonel Pitcher, the new commandant at Fort Sheridan, a few miles north of Chicago, has rescinded the order of his predecessor keeping automobiles off the reservations and will give the motorists full swing, even permitting them to scorch if they wish, for there are no speed laws in the reservation.

Experimenting with Alcohol—Professor Charles E. Lucke, of Columbia university, has begun an investigation of alcohol as a fuel for small gas engines. He is doing the work for the government in the laboratories at Columbia. When he has finished the data will be published in a bulletin which the department of agriculture will issue January 1, when the new law goes into effect.

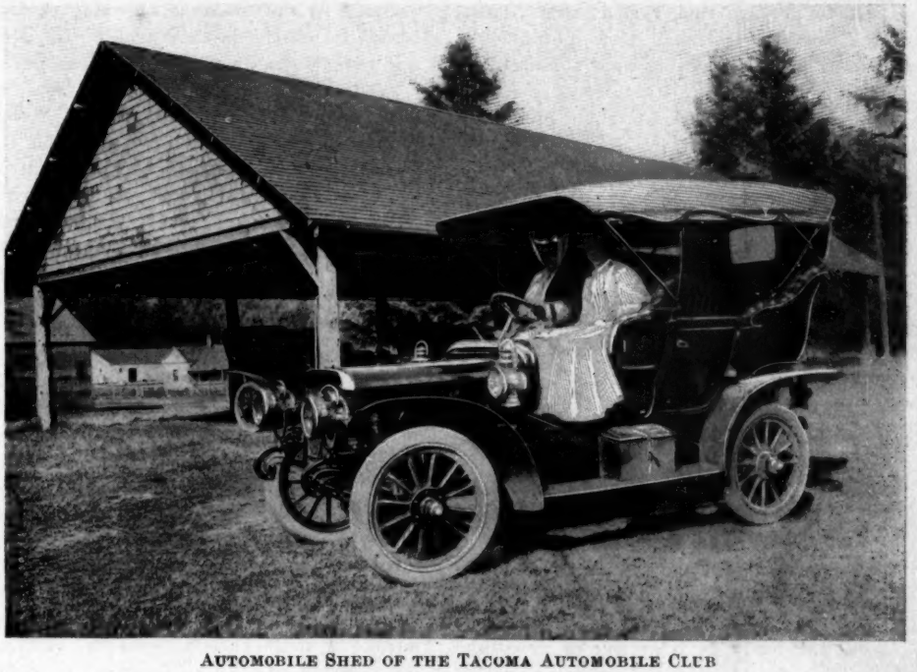
Atlantic City Date—The committee in charge of Atlantic City's automobile carnival has decided upon Thursday, August 16, for the event. In the afternoon the vehicles will parade over the resort's principal streets, and in the evening the cars will be decorated and illuminated, many novel electrical effects being promised.

Boulevard Down South—The new roadway to be built by the United States government to the naval station in Algiers —which is really West New Orleans—is proving of considerable interest to Louisiana automobilists. Congressman Adolph Meyer announced this new project of the government to Mayor Berhman of New Orleans last week. As yet it has not been definitely determined whether macadam or shell will be used in the construction of the road, but it is intended to make it one of the best highways in the country and the most competent experts will be sent by the government to Louisiana to devise plans for the roadway. The naval station is already a point of much interest, and it will be doubly so to automobilists after the completion of this thoroughfare.

Tacoma Active—The Tacoma Country Club, of Tacoma, Wash., has taken to automobiling and has established a fine home at American lake. It also has erected there a novel automobile shed. A photograph of this latter shows Mrs. W. O. Williams at the wheel of a model K Winton, with Mrs. Paul Gyllstrom on the other front seat.

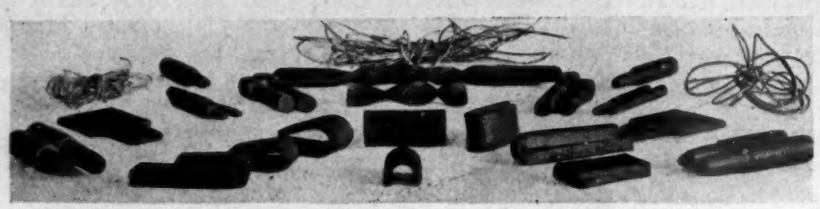
May Reappraise Cars—The board of United States appraisers has decided against O. B. Cole, of Boston, who protested when the appraiser at Boston demanded duty on Cole's automobiles on a basis considerably higher than the invoice prices. In order to obtain possession of the cars the importer paid the extra duties and accruing penalties and carried an appeal to a single general appraiser and later to a board of three general appraisers. This means that automobiles may be reappraised by the general appraisers even when the cars are not exactly before the officers of the United States government.

Spoils of Victory—The committee of the Automobile Club of France has granted a plaquette to Renault brothers, a gold medal to Szisz and an enamel medal to the mechanic Martaud, because of the showing made in the grand prix. Expressions of thanks and gratitude have been bestowed upon local officials and others, including the doctors and club officials who lent their aid in the organization of the race. The first, second and third in the race come in for congratulations; René de Knyff gets especial thanks, and last but not least poor Teste gets the warm sympathy of the club. The list of recompenses and medals to be bestowed is not yet published.



AUTOMOBILE SHED OF THE TACOMA AUTOMOBILE CLUB

VANADIUM—VALUABLE MOTOR CAR STEEL



VARIOUS SAMPLES OF VANADIUM STEEL SHOWING ITS QUALITIES

I propose to set out in some detail the history and peculiar characteristics of a steel with which I have had, during the last few years, some experience, and which, owing to these characteristics, is rapidly finding application in motor construction. Vanadium some 20 years ago was a chemical curiosity, and today there are not many metallurgists who have seen the pure metal. Sir Henry Roscoe was the first to prepare this, and at that time it was worth many times its weight in gold. Vanadium is, however, now found to be widely distributed. Its chief deposits occur in South America, Arizona, Spain and other parts of Europe. It occurs in the iron ores of Luxembourg, and has been found in considerable percentages in the ash of coals, some of which are stated to contain as much as 25 per cent of vanadic oxide.

The Swedish metallurgist, Sefstrom, in 1832 showed its presence in soft Swedish iron, and the Taeberg iron, on which he experimented, was the softest iron then produced, its ductility being remarkable. J. E. Stead found from 0.168 to 0.262 in four samples of pig iron examined, the highest percentages being in Cleveland iron. It has also been found in best Staffordshire iron, and especially in the slags accompanying the manufacture of these irons. Notwithstanding the considerable percentage of vanadium in the materials used, the ready oxidizability of vanadium to vanadic acid causes the greater part of the metal to slag off, and it is on this account that the slags from blast furnaces working on vanadiferous materials are so rich in vanadium. Thus, some of the slags obtained in the smeltings of basic pig in the Luxembourg district contain 2.5 per cent of vanadium, the pig itself only carrying 0.015 per cent, which percentage is still further reduced or eliminated in its conversion to steel. The slags at the Creusot works in France have for some time been treated for their contents of vanadium, and in 1900 about 90 tons of the oxide are said to have been so obtained. This oxide was entirely used in textile work, on account of the fine blacks obtained, and also, to a smaller extent, for ink-making, for the same reason. Until quite recently these industries formed the only commercial applications of vanadium, but to show the high value attached to its compounds, it may be mentioned that, in 1871, $160 a pound was offered for ammonium vanadate. The principal source of the metal for metallurgical purposes is vanadinate, which is a mineral containing some 40 per cent of lead, 12.15 per cent of vanadic oxide, with silica, iron and some silver forming the other principal constituents. In obtaining the metal from the ore the oxide is concentrated from the ore, and this oxide is reduced in the presence of oxide of iron by means of the intense heat of the electric furnace, or by means of aluminum.

With aluminum the reduction from the oxide to the metallic form requires a temperature of over 2,000 degrees, when the evolution of heat from the formation of the alloy is liable, without certain precautions, to give rise to violent explosions, the light given out being comparable to that of the electric arc. Alloys of many other metals, such as chromium, may be obtained by the use of aluminum, and their formation form good lecture experiments, though chrome iron—to which reference will be further made—is obtainable in an ordinary blast furnace, and large quantities rich in chromium are regularly made. In the electric process, the mixtures of oxides and charcoal, and sometimes a little aluminum, are introduced into a plumbago crucible standing on an iron plate, or otherwise electrically connected with the negative pole of a dynamo. A large carbon electrode, forming the positive pole, being balanced by counterweights, is then carefully introduced into the mixture, when an arc is established, and fresh portions of the mixture are added, the operation being watched through a window of claret-colored and dark green glass. The light is intense, whilst the operation is one requiring much skill and experience.

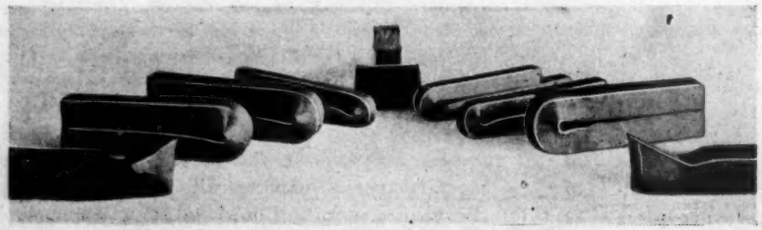
When the process is observed to be completed, according to experience, the crucible is allowed to cool, and a ferro-vanadium is obtained of varying percentages. The results of either method of reduction are not essentially different, and alloys of iron containing up to 82 per cent of vanadium, and other constituents of minor importance, have often been obtained.

Pure vanadium is a silvery white metal of a very high melting point—about 2,000 degrees C. Its specific gravity is somewhat low—i. e., 5.5. The preparation of the pure metal is attended with great difficulty, and can only be attempted in the laboratory. Moissan, even with an electric furnace, was unable to obtain pure vanadium; only its alloys were possible. Among the earlier recorded experiments in directly alloying iron with vanadium are those of M. Helouis, who from the admitted abnormal ductility of Swedish iron, and also from the fact that Staffordshire slags often contained much vanadium, while the iron made from Staffordshire pigs also had high ductility, thought if vanadium were added to steel it ought to toughen it. Other experiments were necessary, but those made by M. Helouis showed that vanadium increased the tensile strength and reduced the elongation of steel. Further, that when 1 per cent of vanadium was present, the steel, though extremely soft, was capable of attaining a great hardness on chilling. In order to test the effect upon steel, a mild steel free from phosphorus, with a tensile strength of 30 tons per square inch and 17 per cent of elongation, was melted in a graphite crucible. It thereupon became carbonized and showed 61 tons tensile and 23 per cent elongation. On adding 1 per cent of vanadium the tensile was raised to 69 tons, with an elastic limit of 50 tons, and 7.3 per cent elongation. The same steel, when melted in a nongraphitic crucible, in order to avoid the absorption of carbon, gave the following results on adding the percentages of vanadium shown:

	Tensile Strength Tons per square inch	Elongation per cent
.5 per cent vanadium, unannealed	42.0	16
1.0 per cent vanadium, unannealed	61.5	14
1.0 per cent vanadium, annealed	45.0	20

The latter metal, although very soft when annealed, became extraordinarily hard by tempering. Ordinary malleable iron of about 24 tons tensile and 19 per cent elongation was changed by the addition of 0.5 per cent of vanadium to 39 tons tensile and 12 per cent elongation in the forged bar, and 33.7 and 32 per cent elongation when annealed. These results, therefore, attracted considerable attention on account of the remarkable malleability and ductility shown. Many of the earlier results obtained were negative. One alloy showed a very high resistance to shock, and the ten-

Editor's Note—This was an address delivered by Alexander E. Tucker, F. I. C., before the Automobile and Cycle Engineers' Institute of England.



SPECIMEN BENDS POSSIBLE WITH VANADIUM STEEL

sile strength was also high. Another specimen gave the following results:

	Before Addition	After Addition
Tensile strength	55 tons	74 tons
Elastic limit	48 tons	70 tons
Elongation, per cent	10.0	11.3
Contraction of area, per cent.	54.0	47.0

In addition to these remarkable results, it was found that quenching hardened vanadium steels far more than it did ordinary carbon steels.

In 1900 Professor Arnold published the results he had similarly obtained. His results are as follows:

	Without Vanadium	With Vanadium
Tensile strength	62.50	72.42
Elastic limit	35.70	50.75
Elongation	8.00	6.25
Reduction in area	7.80	5.90

The carbon in the steel was 1.20, hence the high tensility of the original metal. Tests were also made on malleable iron, with the following results:

	Tensile Strength	Elongation
Original iron	24.5	19.0
Ditto, with 0.50 vanadium, forged bar	39.0	12.0
Ditto, with 0.50 vanadium, annealed	33.7	32.0

Mild steel gave the following:

	Tensile Strength	Elongation
Original steel	30	17.0
Ditto, with 1 per cent vanadium.	61	14.0
Ditto, with 1 per cent vanadium, annealed	45	20.0

Professor Arnold found that on quenching the steels obtained, the metal showed a remarkable strength for cutting tools. A tool was made of the following composition: Carbon, 1.02; vanadium, 0.29; and compared with a special steel containing 1.2 per cent of carbon and 3 per cent of tungsten. It was found that the vanadium steel kept its hardness at a visible red heat. Tools were then made with 3 per cent of vanadium and compared with a 3 per cent tungsten tool. Both were tested on a chilled white iron plate, and the cuttings obtained during a ten minutes' cut were collected and weighed. The vanadium steel had surpassed the tungsten tool in the proportion of 75 per cent.

These steels are alloyed with a small percentage of chromium, and some reference must be made to the effect of this element. Chromium is largely used for armor plate and projectile work. One of these chromium steel experimental shells, 13.5 inches, weighing 1,120 pounds, fired from a 63-ton breech-loading gun at a velocity of 1,950 feet per second, penetrated an 18-inch compound armor plate, a 6-inch wrought iron plate, 20 feet of oak backing, a further 10½-inch wrought iron plate, and was then found broken beyond a 2-inch wrought iron plate—that is, a total penetration of 36½ inches of armor plating. In another instance, a 6-inch projectile was fired through a 9-inch compound plate. Being uninjured, it was ground up true, and fired again through another 9-inch compound plate. It was again ground up, and fired a third time through a 9-inch plate, when it broke up. This last plate, however, had been specially hardened by special means, and probably the shell would have passed through the third plate if it had been of the ordinary compound type. These illustrations show some properties of chrome steel, and while for other classes of work such metal as was used would be quite useless, it is clear that, judiciously harnessed, the properties of chromium may be advantageously applied to mild steel. This has already been done, and much chromium steel is in use for tires, axles and constructional purposes. As to the respective properties of chromium and vanadium in the compound steel, the table above illustrates this well.

The effect of the combination of the two constituents in a steel designed to resist torsion is remarkable. Thus, a steel containing 1.06 per cent chromium and 0.169 vanadium, giving 52.6 tons ultimate tenlated shearing stress of 40.3 tons per square inch, and a torsional test of 1,628 degrees of 4.52 complete turns before fracture. Another sample of similar steel gave 1,786 degrees, or 4.96 complete twists.

One of these samples is illustrated. This is a steel having practically the same ten-

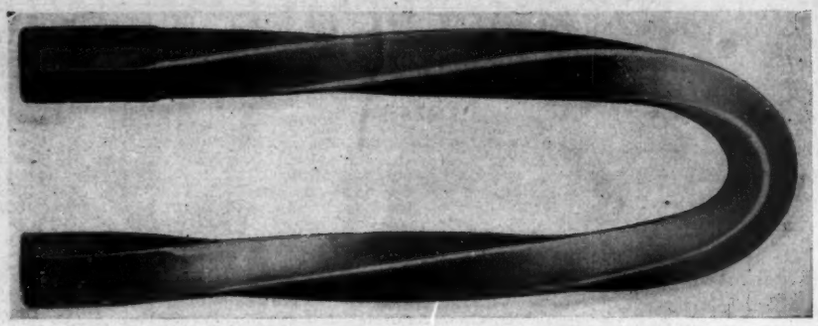
EFFECTS OF CHROMIUM AND VANADIUM ON STATIC TESTS

Crucible Steels	Elastic Limit	Ultimate Tensile Strength	Elongation on Two Inches	Reduction of Area
Plain carbon-manganese	16.0	27.0	35.0	60.0
Ditto, + 0.5 per cent chromium	22.9	34.0	33.0	60.6
Ditto, + 1.0 per cent chromium	25.0	38.2	30.0	57.3
Ditto, + 0.10 per cent vanadium	28.5	34.8	31.0	60.0
Ditto, + 0.15 per cent vanadium	30.4	36.5	26.0	59.0
Ditto, + 0.25 per cent vanadium	34.1	39.3	24.0	59.0
Ditto, + 1.00 per cent chromium + 0.15 per cent vanadium	36.2	48.6	24.0	56.6
Ditto, + 1.00 per cent chromium + 0.25 per cent vanadium	49.4	60.4	18.5	46.3
OPEN HEARTH STEEL.				
Plain carbon-manganese	17.7	32.2	34.0	52.6
Ditto, + 1.00 per cent chromium + 0.15 per cent vanadium	34.42	52.6	25.0	55.5

TABLE SHOWING APPROXIMATELY THE STATIC AND DYNAMIC TESTS OF VARIOUS STEELS

Description	Yield Point, Tons, Square Inch.	Ult. Tens. Str., Tons, Square Inch.	Elongation Per Cent on 2 Inches.	Contraction, Per Cent.	Impact, Ft., Lb., W. & R. Test.	Impact, Blows, Seaton & Jude Test.	Alternations of Stress, Arnold Test	Hand Right Angle Bends.	Supplementary
Carbon steels—									
"Swedish" quality, mild	14	22½	50%	60%	15	..	100	18	Fulfils the most severe crushing, bending, bulging and expanding tests. Equal to best Swedish mild steel.
"Forging" quality	17	31	32%	47%	8	25	120	12	Easily stands plate-bend, i. e., D=2 T.
Nickel steel—									
3% nickel steel, "Forging" quality	22	39	34%	58%	14	..	100	12	Bends, etc., as forging steel.
Vanadium steels—									
Chrome-Vanadium "50-ton" steel (type A)	37	53	25%	50%	5	25	160	15	⅝ in. sq., milled bar, bends close double; 1 in. round (rolled), bends close double; welds thoroughly; twists like mild steel in flat sections; standard conditions, 6 in. length, .75 in. dia.=3.92 twists (Nash's torsion test).
Ditto, annealed 800 deg. C	21	39	34%	53%	16	69	190	18	⅝ in. sq., milled bar, bends close double; 1 in. round (rolled), bends close double; welds thoroughly; twists like mild steel in flat sections; standard conditions, 6 in. length, .75 in. dia.=4.56 twists (Nash's torsion test).
Ditto, oil tempered	46	56	21%	56%	12	76	160	10	.75 in. round (milled), bends double (D=2 T).
Chrome-Vanadium "Bolt" steel (type B)	23	37	30%	55%	10	..	130	15	Torsion (previous conditions)= 4.96 twists (Nash's torsion test).
Chrome-Vanadium spring steel (type D)	45½	72½	13%	44%	4	..	...	..	Twists in flat tight up; 9-16 in. round, bends double; after tempering a spring of it, co-efficient of safe working load= 40,000; with excellent carbon spring, co-efficient of safe working load=20,000.
Vanadium case-hardening steel (type E)	20	25	45%	69%	17	..	240	..	

sility and elongation—that is, 53 tons, 25 per cent elongation, with a reduction of area of 55.5 per cent, which has been twisted through 360 degrees and then bent double, as shown. I believe I am correct in saying that such properties in one and the same metal have not hitherto been approached anywhere.

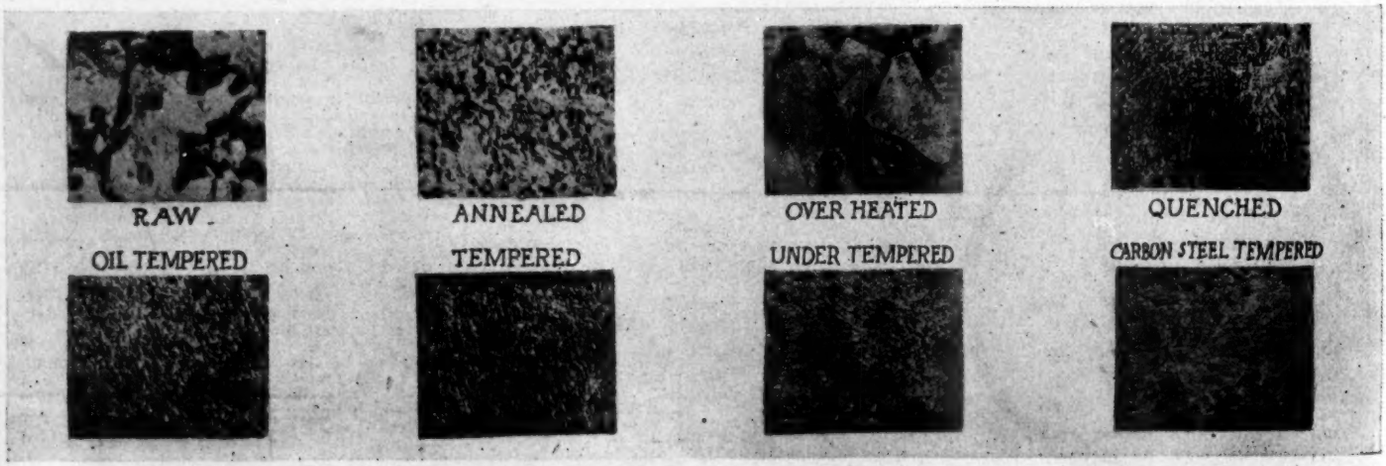


COLD TEST ON VANADIUM STEEL WITHOUT TREATMENT

It would appear that this steel is particularly applicable for crankshafts, connecting rods, etc., of internal combustion engines, and, indeed, and constructional work requiring great resistance to shock. I am aware that great trouble and loss has been occasioned by the repeated breakages of the large crankshafts of gas engines working on blast furnace gas and developing some 500 horsepower, and when the intensity of the explosion in these large cylinders is considered, it will be seen that very special requirements are necessary in the metal to meet it. Considerable elasticity is essential in such constructions, and fracture occurs because it is deficient in them. Hence, a metal with a high tensile and a high elongation figure would absorb these shocks very much better than any ordinary mild steel. These vanadium steels show very high figures on the impact tests, and so the sectional areas of such large shafts, and similarly those of the smaller shafts, connecting rods for motor work could with much advantage be reduced.

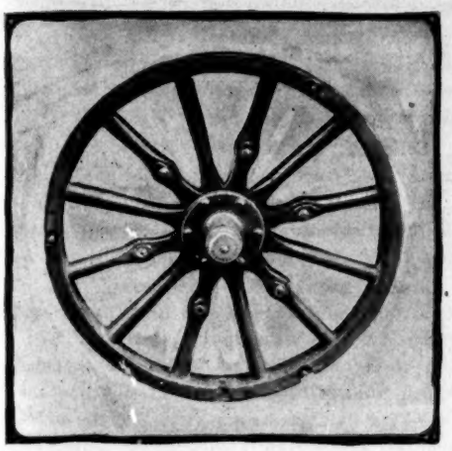
The practical significance of such results is, of course, now being recognized, and many hundreds of single and multiple throw cranks are in use. They have, however, in accordance with the desire of the motor car builders, been slotted out of the forged bloom in the slab shape, but I am supported by very competent authority in my suggestion that they would be better bent from the round, as the flow of fiber would lend itself to resistance to the strains required in the same way that a natural knee for wooden ship construction is always stronger than one built up. With such steel no danger accrues by such simple bending, while the cost would be greatly less. I am informed that to make a six-throw crank weighing, say, 60 pounds finished, something like a 300-pound slab is operated on, the metal removed being, of course, scrap only. The other uses of these steels are for tubular axles, gear wheels, springs, all of which have given excellent results. It is obvious that the character of the steels for such varied purposes must also vary, and five different kinds are regularly made. There appear to be two schools of motor car engineers, one of which adopts case-hardening for frictional surfaces, and the other which forswears case-hardening of any kind; and both have obtained good results. The results, therefore, obtained in casing vanadium steel are of great interest, for in some of them, which have been tested to destruction, it is found that, although the surface is glass-hard, considerable curvature of the piece has been obtained, the surface having cracked without the piece having entirely fractured at those cracks. On testing it was found that, after casing and hardening, the core had an elastic limit of 30 tons and a contraction of over 60 per cent. The material before casing had an alternation of stress figure two and a half times that of excellent case-hardening steel. On the other hand, the surface hardening which can be obtained with vanadium steel, having much higher tensility than 30 tons, is very great, and therefore the alternative is open to the second school, who disbelieve in casing the work. It appears to me that the advantages of the steel having the initially greater strength and the subsequent superficial hardness are considerable, because of the well-known frequent failures in case-hardening. The excessive heating required for casing, and consequent frequent deformation of the articles treated, would be avoided or greatly reduced. Again, the actual cost of treatment would be much less, and the subsequent grinding to truth would also be less. It does not seem reasonable to expect as good results with case-hardening as with a material in which the distribution of the carbon, or other element on which the hardening depends, is much more uniform.

It will be admitted that in motor construction metal is subjected to strains of no ordinary kind, and which are often complex in character. Hence it is desirable to examine steel for such work in every possible practical way, and two comparatively new tests—the impact test and the alternation of stress test—have both been in constant application in arriving at the results of these manufactures. The alternation of stress test, of which Professor Arnold's is an excellent type, consists in holding a piece of metal, of standard size, at one end in a vise, and bending the other rapidly backward and forward through a specified distance by means of a cam actuated by a dynamo. It is clear that such a test will accurately and quickly sort out inferior steels when such tests are taken in conjunction with the usual static tests, and most instructive and valuable results are being obtained by such methods. The other dynamic test, known as the impact test, consists in determining the number of foot pounds required to break a section of known area, and on account of its simplicity and capability of general utility. It is not suggested that these impact tests should replace the static tests obtainable on testing machines.



MICROPHOTOGRAPHS OF SECTIONS OF VANADIUM STEEL ENLARGED 250 DIAMETERS

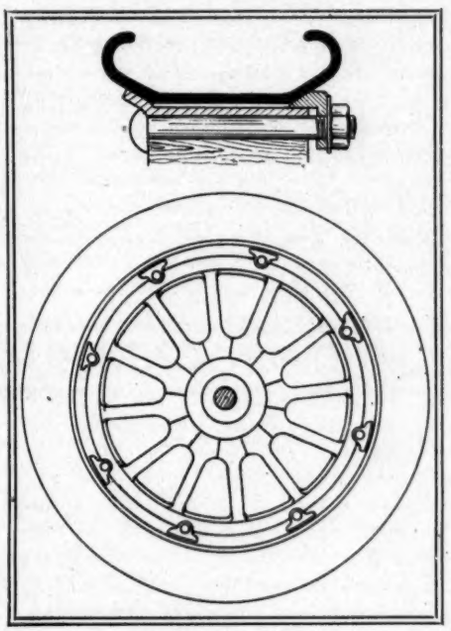
REMOVABLE RIMS LATEST IN FRANCE



WHEEL WITHOUT RIM

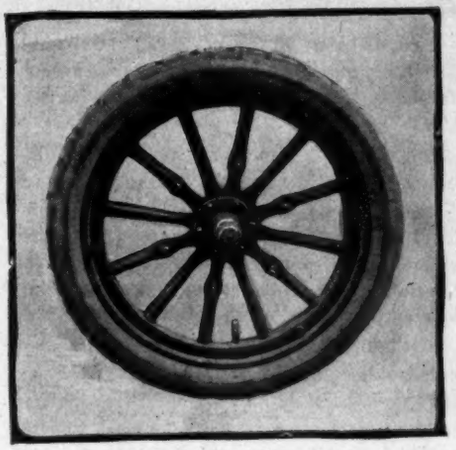
Road races such as the grand prix, Vanderbilt cup and Florio cup are in 90 per cent of the cases won or lost by the tires, these of all susceptible parts of the motor car generally proving the Waterloo to most of the big machines. In the recent grand prix in France Szisz, the winner, in his Renault, changed tires not fewer than nineteen times in going the 774 miles on 2 successive days. Each tire change required but 5 minutes, whereas those drivers using the ordinary types of fixed rims in which the tires have to be removed from the clincher lips and replaced by others required often 30 minutes for the taking off and replacing of a single tire. In a race like the grand prix, where the road, with its brittle surface and intense heat, proved a death trap to fallible rubber, the amount of time saved in tire replacing meant the winning of the race. Particularly was this the case owing to the rules forbidding any person giving assistance in tire removal or replacement, the driver and his mechanic being the sole repairmen. Besides the time lost in such repairs, the amount of energy needed for removing as well as for replacing the present type of clincher tires did more to fatigue the drivers than did the guiding of the cars at their top speed. Previous to the race most of the makers were skeptical as to the merits of the detachable rim and several of the leading drivers and car builders refused at the last moment the entreaties of the tire maker to fit their cars with removable rims.

Michelin & Co., of Clermont-Ferrand, makers of the well-known Michelin tires that have for so many seasons carried off the highest honors in the big road events, manufacture the detachable rim used, but the patent is in dispute. In reality there are two makes of these rims, one known as the M. L. and the other the Vinet. They are identical except in details. The cross-sectional illustration reveals the feature of each. The removable clincher rim shown in heavy black line is identical with that carrying the tires on the wheels of American cars. It is not bolted to the wheel rim, but is carried on a sloping flange on one side of the fixed steel rim of the wheel and on the other side rests on a split ring made with a wedge edge which is pressed between the detachable rim and the steel rim. The split ring is in turn held in place by a set of three or six bolts.



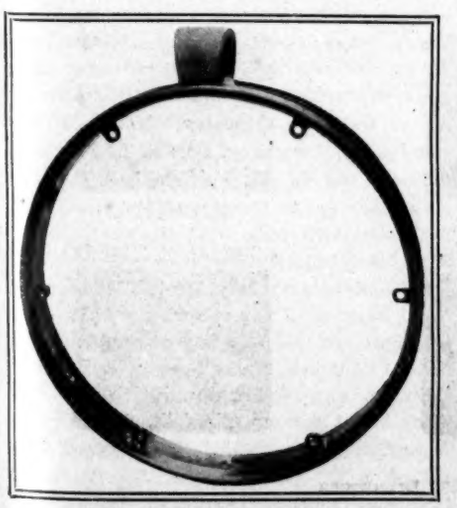
WHEEL WITH REMOVABLE RIM

A reference to the other illustrations shows best the general appearance of the several parts entering into the construction of a wheel using a detachable rim. Starting with the plain wheel, it will be noted that the spokes are identical with those used in American artillery wheels and that the fixed rim is if anything somewhat heavier and carries around it a flat steel band or tire. Placed in this rim are three bolts, projecting through the outer surface, with the rim cut away around the bolts, leaving U-shaped receptacles for receiving the lugs shown on the detachable rim. The detachable rim carries six lugs, whereas but three receptacles and bolts are shown on the wheel rim. It is needless to say that the rim is intended for another style of wheel with six bolts. The tire is placed on the detachable rim before the rim is put on the wheel and is inflated to its required pressure, the strength of the rim being sufficient to withstand this pressure without losing shape. To attach, the rim is slipped over the wheel, the lugs going over the rim bolts and resting in the U receptacles. A set of nuts holds the rim in position. In order that the detachable rim will fit easily it is made somewhat large in diameter, about 4 millimeters, the fit being so perfect that but a couple of taps with a hammer are needed to remove the rim once the nuts are taken off.

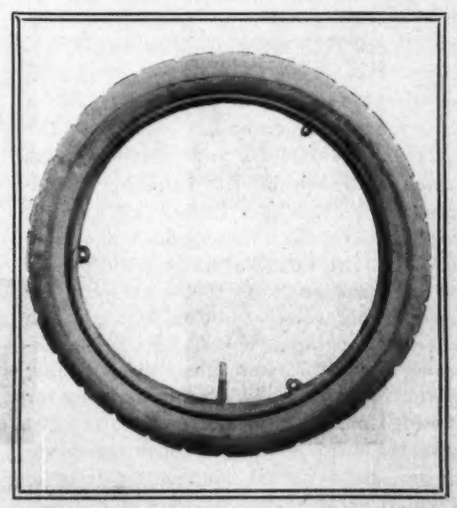


WHEEL WITH RIM AND TIRE

A difference between the M. L. and Vinet rim is in the valve arrangement, the M. L. having a slot cut in the permanent wheel rim so that the valve can slip through this into position, the lugs on the detachable rim preventing creeping. In the Vinet this slot is not needed, a very short valve stem being preferred. To accommodate this short valve stem a depression is made in the inner surface of the detachable rim, at that point surrounding the valve, and in this depression is sufficient room for the valve. This method eliminates the necessity of cutting a slot.



RIM WITH ATTACHING LUGS



INFLATED TIRE ON RIM

AMONG THE MAKERS AND DEALERS

Brand Sales Manager—Fred P. Brand has been moved up a step at the Autocar factory at Ardmore, Pa., and now writes "sales manger" after his name.

Splitdorf's Representative — Bartholomew Houlihan will open a branch in San Francisco for C. F. Splitdorf of New York. The increased demand for the Splitdorf coil on the coast convinced the maker of the advisability of having a stock there, hence this move.

Uses Big Power—At Yarmouth the largest motor-equipped fishing craft in England has been launched. It is propelled by twin screws, driven by two oil motors of 140 horsepower each. Hitherto the motor fishing craft has been voted a failure owing to insufficient engine power to enable her to compete with steam trawlers and other vessels.

Colonial Opening—The Colonial Automobile Co., of Pittsburg, has just got into its new home at 5518-5520 Walnut street, East End. The garage is 50 by 140 feet, two stories high and of fireproof concrete construction. It is fully equipped with modern appliances and is counted by experts one of the most convenient and serviceable garages in the city. The Colonial is handling the Cleveland, Baker, Electric and Finch.

Cylinder War Still On—The cylinder dispute is not going to be allowed to die out, apparently, in England. S. F. Edge now steps into the breach for the second time and offers to match one of his six-cylinder Napiers against a four-cylinder car of equal cylinder capacity for hill-climbing, speed or any other purpose. It will be remembered, perhaps, that Mr. Edge for some reason withdrew from the challenge by Captain Deasy which the Rolls-Royce people took up.

Want Second-hand Cars—A strong feature of the automobile trade in Pittsburg since April 1 has been the wonderful demand for second-hand cars. It is safe to say that at least one-third more men are buying and using cars in Greater Pittsburg than ever were counted owners before. This means that dozens of men on salaries ranging from $1,500 to $3,500 a year are getting cheap but good cars. The Atlas Automobile Co. and other big firms which cater especially to handling second-hand cars have been rushed with orders for 2 months past, many of which they are unable to fill. Naturally the majority of the customers want 1905 makes and for machines in good condition better prices are being paid than last year. The demand for 1905 cars from the outlying towns is very heavy also, especially for the big touring cars, and some sales have been made lately that are opening up entirely new fields for automobile firms to work. Cars of 1904 and 1903 make have lately been selling quite a little to men who had a limited amount of money to spend and who wanted cars before they started on their vacation tours.

Names Its Business—The company purchasing the retail business of the Columbia Electric Mfg. Co. at Indianapolis has named its garage the Capitol City Auto Co. The company will have the agency for the Leader cars and will do a general automobile repair and storage business.

Bought by Maxwell—The controlling interest in the stock of the Morrison-Tyler Motor Co., 121 Massachusetts avenue, Boston, Mass., has been disposed of to the Maxwell-Briscoe Motor Co., of Tarrytown, N. Y. The business will be continued under a new corporation to be styled the Maxwell-Brisco-Boston Co., with a capital of $100,000.

Asks Pennsylvania Charter—The Vestal Shock Absorber Co. has made application for a Pennsylvania charter and expects to be fully established in its Pittsburg manufactory in the east end in a short time. O. E. Vestal, formerly sales manager of the Keystone Automobile Co. and inventor of the shock absorber, is the head of the company. With him are associated Harvey A. Miler and A. G. Nesbitt.

Show for New Orleans—Interest in the automobile show of New Orleans is being revived. The show was to have been held this summer, but was indefinitely postponed because there is no auditorium of sufficient size in the city. This obstruction will be eliminated in the fall, however, when the Brooke winter garden will be completed. The work on this large structure has just been begun. The general style will be the same as the Chicago Coliseum and the building will be completed about October 1. It is stated that the automobile exhibition will be held in this building some time during the winter. A large number of exhibits have been promised and everything points to the show being a most successful one.

Nutmeg State Statistics—The census bureau has issued a bulletin on the census of manufactures of Connecticut for 1904, which shows that in that year there were seven establishments devoted to the manufacture of automobiles. The total capital invested was $3,712,922, of which $138,324 was in land, $770,987 in buildings, $851,477 in machinery, tools, etc., and $1,952,134 in cash and sundries. The average of wage earners that year was 1,065, to whom was paid $783,993 in wages. Miscellaneous expenses amounted to $466,851, the cost of materials used to $1,163,072, while the value of the product was $2,644,334. The automobile industry was in its infancy at the time of the census canvass of 1900, but two establishments being reported in that year, the returns being combined with those for carriages and wagons. The centers of the automobile industry are Hartford and Bridgeport.

Sells Bicycle Business—In order to devote more time to the automobile business the Gibson Automobile Co. of Indianapolis has disposed of its bicycle business to the G. H. Westing Co. of the same city.

Raises Legal Point—William F. Polson is suing the International Railway Co. of Buffalo in the municipal court for $131.20, the costs of repairs to one of his automobiles, and $270 loss of rent of the machine at $15 a day. He says a car hit the automobile as it was about to go into his garage at Buffalo.

Conners in Charge—Smith & Mabley, of New York, have associated with them H. A. Conners, Philadelphia agent for the Rochet-Schneider. Mr. Conners has opened a salesroom at 262 North Broad street, where he will exploit the Simplex, Panhard, Renault and Mercedes in the Quaker city and contiguous territory.

Jones' Side—The statement that the Kirby stood first in the order of merit in the recent British speedometer test is answered by the makers of the Jones, who produce a letter from the judges in which they assert the Jones carried off the honors, the Kirby not being in a position to comply with the regulations by being chosen from stock since it had not been placed on the market.

Drying Air Blast—The De La Vergne Machine Co., New York city, is installing at the E. & G. Brooke Iron Co.'s plant at Birdsboro, Pa., refrigerating machinery of 350 tons capacity to be used in drying the air blast for the furnaces. By this new method the air is passed over coils of pipe containing cold brine or ammonia. Part of the moisture contained in the air is deposited on these pipes, the part remaining being practically constant so the humidity of the blast is uniform.

New Wayne Agency—The following firms have secured the agency for the Wayne cars in their respective towns: A. A. Schaffenburg, New Orleans, La.; Auto & Machine Co., Macon, Ga.; Auto & Motor Boat Co., Houston, Texas; W. H. Artzberger, Allegheny, Pa.; E. L. Benedict & Son, Coin, Ia.; T. V. Campbell, Galena, Kan.; George V. Clough, Galveston, Tex.; Dempster Mill Mfg. Co., Beatrice, Neb.; S. G. Graybill, Elizabethtown, Pa.; C. F. Hayes, Riverton, Ia.; Louis Henne Co., New Braunfels, Tex.; Kerberg & Protexter, Sanborn, Ia.; C. Louis, Ogdensburg, N. Y., 19 South Water street; V. L. Nettleton & Co., Coldwater, Mich.; A. A. O'Neill & Brother, Norfolk, Va.; Osage Auto Co., Osage, Ia.; C. T. O'Ferrall, Jr., Dillon, S. C.; Sewell Page, Jr., Waverly, Ia.; John Slattery, Scranton, Pa.; C. E.

Fletchiner, Binghamton, N. Y., Webb City Auto Co., Webb City, Mo.; Percy Walker, Wenatchee, Wash.; J. F. Wethers, Columbus, Ga.; Witter & Hoch, Storm Lake, Ia.

Brandt Corbin Sales Manager—E. H. Brandt, formerly connected with the Fisk company, has been appointed sales manager of the Corbin Motor Vehicle Co., of New Bretton.

Williams Changes—P. A. Williams, Jr., who has been connected with the Ford company in Boston for some years past, has been appointed traveling representative of the Aerocar company in the New England states.

Alcohol Motor—C. J. Bristol, of the Monarch Machine Co., of Des Moines, Ia., is building an experimental alcohol motor, working on the theory that alcohol vapor can be subjected to a pressure of 800 pounds without premature explosion, while 100 pounds is the maximum in the case of gasoline.

After Buick Property—A meeting of the stockholders of the Buick Motor Co. has been called for the purpose of voting on the proposition of selling the company's property at Detroit to the Whiting Motor Co. This is a new corporation, backed by Flint capitalists, which is shortly to file articles of incorporation. When the Buick company removes to Flint, the Whiting company proposes to start the manufacture of four-cylinder cars in the old plant of the Buick company for the latter concern, which will devote its new factory exclusively to the making of two-cylinder cars for next year's trade.

Will Handle Bumpers—The Auto Cover and Top Mfg. Co. has taken the exclusive agency for Greater New York for the Harroun automobile bumpers. The bumpers fit on the front of the springs, protecting the vital parts of the machine, including the lamps and radiator. They are equipped with a shock-absorbing device, which takes the contact in case of collision with other automobiles or objects.

Oklahoma Concern—The Motor Co. has been organized at Oklahoma City, Okla., to sell automobiles, motors, gas engines, accessories and supplies. It is ready to act as western sales agent for a number of manufacturers.

Driscoll Acme Receiver—On petition of Frank A. Devlin, one of the heaviest creditors, Daniel J. Driscoll was appointed by the court in Reading, Pa., last week receiver of the Acme Motor Car Co., maker of the Acme car. The company's plant is quite extensive and its capital is $200,000.

Working on '07 Engines—Several models of air-cooled engines and perhaps a water-cooled one, with power varying from 12 to 45 horsepower, will constitute the line of the Reeves Pulley Co., of Columbus, Ind., next year. At the present time the company is devoting its attention to the marketing of 4 by 4 20-horsepower air-cooled motors, the shafts of which are forged from solid steel billets. The cylinders, pistons and piston rings are ground and the crankcase is made of aluminum. A Herz timer and a Universal carbureter are part of the equipment. For purposes of demonstration the company has at the factory several cars made for the purpose equipped with its motors.

RECENT INCORPORATIONS

Albany, N. Y.—Schenectady Automobile Exchange & Supply Co.; capital stock, $1,000; to deal in automobiles and supplies; incorporators, C. E. and N. I. Smith and James Nicholson.

Albany, N. Y.—Kimberger & Vreeland; capital, $150,000; to manufacture gas engines, motor boats, etc.; incorporators, H. J. and M. E. Kimberger, Thomas B. and John H. Taylor.

Springfield, Mass.—Bailey-Perkins Motor Co.; capital stock, $20,000; to manufacture motors, engines, machines, etc.; incorporators, Bertram Bailey, James Perkins and W. L. Van Sicklen.

Albany, N. Y.—People's Specialty Co.; to manufacture vehicles, motors, engines, etc.; incorporators, N. R. and E. P. Wickersam, K. R. and Rollins Otis, of Corning.

Peterborough, Ont.—Peterborough & Chemong Auto-Car Co.; capital stock, $5,000; to manufacture automobiles, etc.; directors, T. J. Parker, A. Elliott and A. B. Lee, all of Peterborough.

Montreal, P. Q.—Canadian Newcomb Motor Co.; capital stock, $600,000; to manufacture automobiles, boats, machinery, etc.; incorporators, W. F. Borland, D. McDonald and W. J. White.

Evansville, Ind.—Worth Mfg. Co.; capital stock, $100,000; to manufacture and sell automobiles; incorporators, John C. Zutt, A. F. Karges, W. M. Copeland, James M. Worth and William O. Worth.

BRIEF BUSINESS ANNOUNCEMENTS

New York—J. M. Bolin has opened an agency for the Mora at 1711 Broadway.

Martinsburg, W. Va.—An automobile company has been organized here with a capital stock of $5,000.

Salt Lake City, Utah—Work is to be commenced at the lagoon on a large automobile garage, chiefly for the convenience of the patrons of the hotel.

Pontiac, Mich.—The National Body Co., which removed here from Mt. Pleasant, is now installed in the vehicle plant formerly occupied by C. V. Taylor. The company manufactures vehicle and automobile bodies.

New York—Harry S. Houpt, the agent for the Thomas Flyer and the Rauch and Lany electric vehicles, has removed to his new building at Sixty-second street and Broadway. The Frayer-Miller company will occupy his old quarters at Broadway and Forty-ninth street.

Philadelphia—The Mathewson Co. of New York has opened a new agency for its car under the management of Cornelius Baker, whose headquarters will be at the Bellevue-Stratford until the completion of the company's new building. The British-American Co., of Bridgeport, Conn., maker of the United States ordnance, is to manufacture all the frames that will be used by this company.

Newark, N. J.—The Green Automobile Agency has opened its tire repair shop at 9 Bleecker street.

Harrisburg, Pa.—The Pittsburg Auto Express Co., of Pittsburg, has been incorporated with a capital stock of $25,000.

Bridgeport, Conn.—Ground has been broken for the new plant of the Wolverine Motor Co. The buildings, which are to be completed in the early fall, are to be built of cement blocks, and the main factory will be one story high. The company manufactures motors.

Brookline, Mass.—The proposal of Rufus A. Flanders to open a garage on Harris street is meeting with great disapproval with the residents of that section. A petition is being circulated and will be presented to the selectmen asking that they refuse a license.

Menasha, Wis.—President Meiselbach, of the Meiselbach Motor Wagon Co. of Milwaukee, has purchased a plot of land in this city and will locate the plant here. Contracts for a two-story building, 125 by 85 feet, have already been let. The company at present occupies the old plant of the Meiselbach Bicycle Co. at North Milwaukee.

Reading, Pa.—A permit has been granted to A. W. Abner for a one-story garage for W. E. Fisher.

Pittsburg, Pa.—The Colonial Automobile Co. will shortly take posession of its new building at 5518 Walnut street, Shadyside.

Newark, N. J.—The East Jersey Motor & Transportation Co. has opened a new omnibus line to Boynton beach, which is meeting with great success among the motorists of New Jersey.

Jamestown, N. Y.—A new repair shop has been opened by the Auto-Cycle Co. at 110 East Second street under the management of W. C. Hess. A specialty will be made of automobile work by Manager Hess and his workmen.

Olean, N. Y.—The Kirkham Motor Co. has secured an order for 100 of its four-cylinder motors to be used in the manufacture of cars by the York Motor Co., of York City, Pa. The order, which aggregates about $30,000, will be filled at the rate of three a week, commencing August 1 by the Kirkham company.

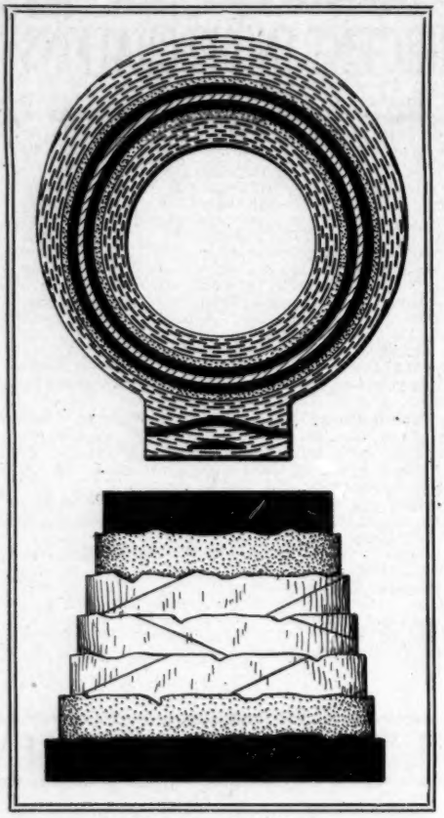
CURRENT AUTOMOBILE PATENTS

Motor Car Guard—No. 826,432, dated July 17; to F. E. Jousset, New York city—The invention is a guard for encircling a motor car when reposing in an exhibition space, such as an automobile show. It consists of a medium-height wire screen suspended from the vehicle wheels. Adjacent ends of the screen can be coupled together, thus completely encircling the motor car, or should several cars be standing in a line or side by side the ends of several screens may be united, the screen thus forming a continuous fence around the several cars.

Seven-ply Tire—No. 826,490, dated July 17; to J. H. Swain, Pittsburg, Pa.—Starting at the inside the seven thicknesses in the wall of the inventor's tire are: An air tube, plain canvas surrounding this tube, vulcanized fiber wound spirally around the plain canvas, strips of steel wound spirally around the canvas but in the opposite direction, vulcanized fiber spirally wound around the steel but in opposite direction, plain canvas surrounding the vulcanized fiber and an outer tube surrounding the plain canvas. The outer tube covering has an enlarged tread part and a rim part which rests on the felloe of the wheel.

Covered Solid Tire—No. 826,461, dated July 10; to C. E. W. Woodward, Chicopee Falls, Mass.—This tire resembles the pneumatics in that there is an outer covering or shoe, but differs in that this casing instead of being filled with an air tube is filled with a core of spongy rubber, this core part being larger when measured from one side of where it rests on the rim to the other than the width of the casing in the same place. When putting the cover over this core centripetal force is extraneously applied. The sides of the casing part are secured to the sides of the wheel rim by flanges and cross bolts, the bolts passing through the rim but not entering the tire base.

Rubber Block Tire—No. 826,405, dated July 17; to A. T. Collier, St. Albans, Eng.—This tire is composed of a series of blocks of india rubber placed crosswise on the outer surface of the wheel rim, the blocks being of such size that two of them are always resting on the ground at once. On the under side of these blocks are what are termed carriers, being flat metal pieces to which the under side of the india rubber blocks are attached. These carriers extend further to the sides of the rim than the rubber blocks and fasten into side flanges secured to the sides of the rim. Each rubber block is secured to the carrier by a pair of cross bolts.

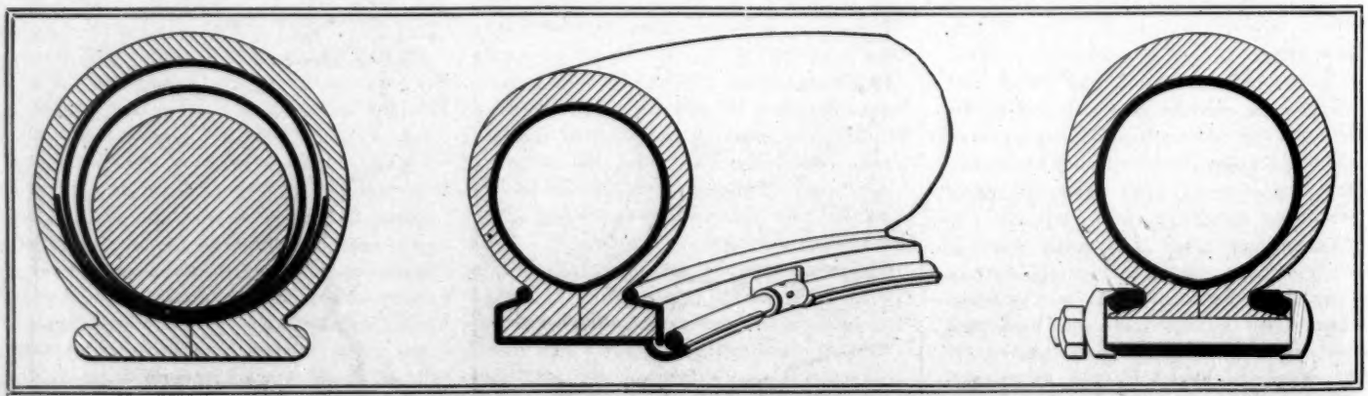


SWAIN'S SEVEN-PLY TIRE

Combination Tire—No. 826,338, dated July 17; to J. H. Kressler, Bethlehem, Pa.—Five parts enter into this combination rubber and metal tire. An air tube as used in a pneumatic is not required, all of the resiliency coming from an outer rubber covering such as the casing in a pneumatic, an inner core piece, circular in cross section and of soft spongy leather, and a couple of spiral springs. The springs are between the rubber core and the cover or casing, the larger resting against the inner side of the casing so as always to keep it filled in proper shape, and the other resting eccentrically between it and the rubber core. Between the outer spring and the rubber casing next to where the rim is the inventor places a crescent-shaped steel lining that serves as a trough or circular groove in which the rubber core rests. This crescent lining prevents the core portion getting out of position.

Fisk Tire Construction—No. 826,143, dated July 17; to J. C. Cole, Chicopee Falls, Mass.—This patent refers to the well-known Fisk tire construction in which the tire casing possesses flange lips with flat bases resting on the flat outer surface of the rim of the wheel. Over the lip on each side rests an endless steel clamping ring, which rings are held in place by cross bolts through the tire rim, each bolt carrying on each end a clamp resting against the side of the wheel rim and against the endless ring, holding the latter in place and further insuring against lateral movement on the rim. The succeeding patent shows a different method of securing these tires. The wheel rim carries a metal rim plate made with a permanent flange on one side adapted to fit over the lip of the tire and the other side has a circular groove. In this groove is placed a spring ring with turnbuckle for tightening. When in position the spring ring holds a removable flange between it and the side of the tire, this flange being identical in shape with the permanent one on the opposite side.

Packard Gearset—No. 826,365, dated July 17; to C. Schmidt, Warren, O.—This patent refers to the style of transmission used in the Packard touring car in which the gear set casing is formed integrally with that supporting the differential and back axle, the drive to this being by shaft from the clutch.



KRESSLER'S TIRE FISK'S TIRE CONSTRUCTION FISK'S TIRE

American Motor League

OFFICIAL BULLETIN

National Headquarters, Vanderbilt Building New York

SPRINGFIELD TO WORCESTER

It is no boast to say the map printed on this page is the best, clearest, most correct and most easily followed road map, covering the 50-odd miles between Springfield and Worcester, Mass., that has ever been published. It shows the streets by which the tourist enters and leaves both these important cities and the various railroad crossings and branch roads as well as the important side trips by which neighboring towns may be reached by departing a few miles from the main route which is shown, as in other A. M. L. maps, by the heavy lines.

From Springfield the distances to main points en route are as follows: Palmer, 16½ miles; Warren, 28 miles; Brookfield, 34 miles; Spencer, 41 miles; Leicester, 46 miles; and Worcester, 52 miles.

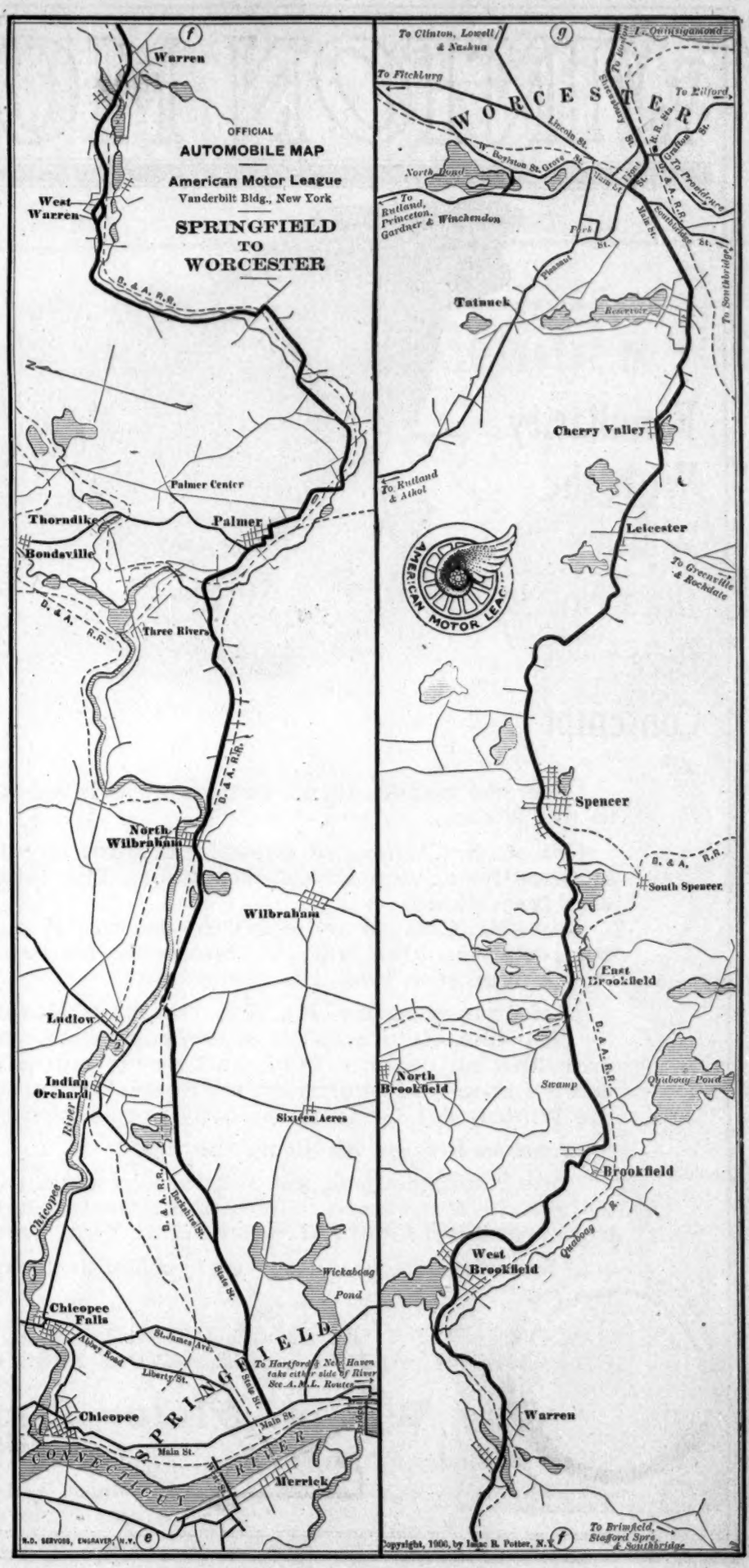
This is the third map in the popular route between New York and Boston via Springfield; the fourth and last covers the distance between Worcester and Boston via two separate roads, one running through Shrewsbury, Northboro, Marlborough, Wayland, Weston, Waltham and Watertown; the other, a more southerly line, through North Grafton, Westboro, Southboro, Framingham, Wellesley Hills, and thence through either of the several routes — Commonwealth avenue, Beacon street or Boylston street—into Boston.

FREE TO LEAGUE MEMBERS

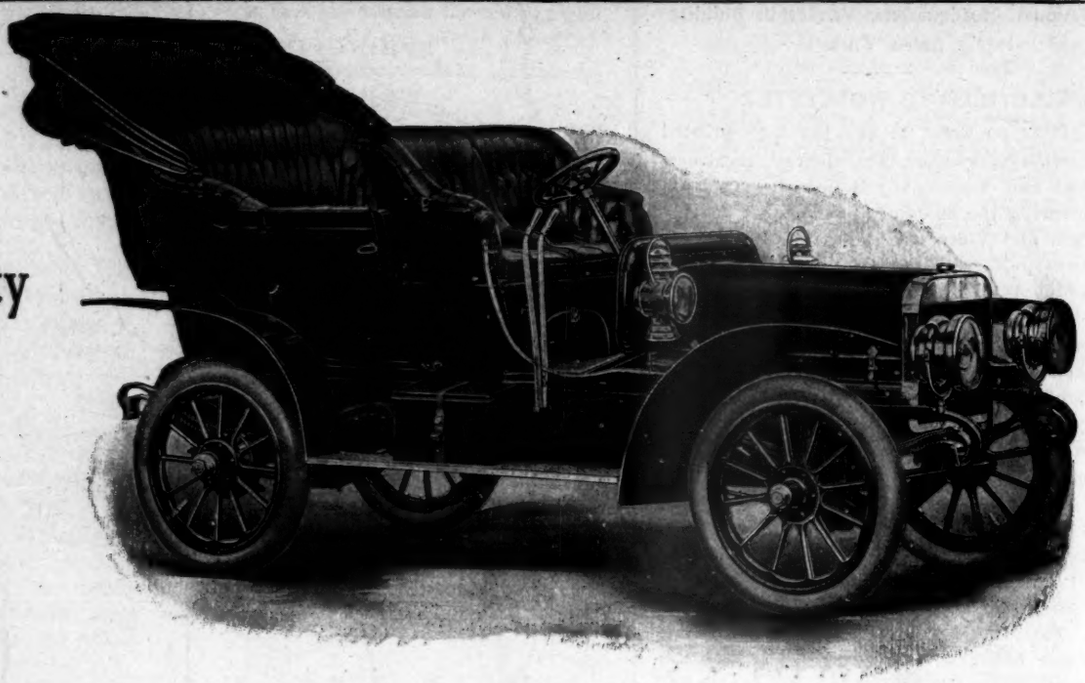
This map and all others printed by the league will appear in the official road books which will be distributed free to all members of the organization. Meanwhile, for temporary use, and in many cases for permanent use, these maps will be printed in card form and as soon as ready for distribution will be sent to members living in the various localities to which the several maps apply. Those who have already secured these maps and given them a trial pronounce them to be all the league claims for them. If you are contemplating a tour it would be advisable to look up the A. M. L. maps.

A GREAT WORK

This work of mapping these important routes will extend over the entire country. The league wants help; it needs information; it deserves support. If you believe in this work put your name on the membership roll. No initiation fee; dues $2 a year. Full information on request. Address American Motor League, Vanderbilt building, New York.



WINTON MODEL-K



Familiarity With the Winton Does Not Breed Contempt

The old adage about familiarity and contempt doesn't apply to the Winton.

Mr. A. S. Gilman, *of* Cleveland, purchased a Winton Model K against the advice *of* his chauffeur. The latter admitted that he was prejudiced.

But—Mr. Chauffeur hadn't driven the K a week until he was completely in love with it. "Simplest car to run and take care *of* that I ever saw," was his comment.

Another instance—Mr. W. L. Hixon, *of* Mankato, Minn., says:
"My chauffeur was an anti-Winton man when I engaged him, and, like all other critics, had never run a Winton car. In one week's time he became an enthusiastic convert and pronounces the Winton Air Control the only proper control for automobiles."

And so it goes, all along the line.

One needs only to get acquainted with the Winton Model K to become converted to Winton exclusive features *of* Air Control, Individual Clutch Transmission, Twin Springs, etc.

"The Motor Car Dissected" explains them fully. Copy upon request.

COMPARE THE $2500 WINTON MODEL K WITH ANY CAR ON THE MARKET SELLING AT $3500 OR MORE.

The Winton Motor Carriage Co.

Licensed under Selden Patent **CLEVELAND, OHIO, U. S. A.**

Branch Houses in New York, Pittsburg, Boston, Philadelphia, Chicago or London. Winton Sales Agencies in all important places.

Mention Motor Age.